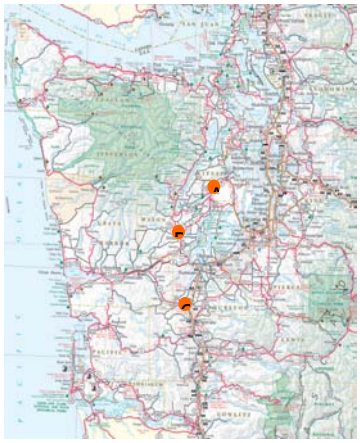
DRAFT

ENVIRONMENTAL IMPACT STATEMENT

for the

Washington State Department of Corrections



WESTSIDE PRISON RECEPTION CENTER

November 2011

Cover letter from DOC – to be inserted

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DRAFT

ENVIRONMENTAL IMPACT STATEMENT

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Washington State Department of Corrections

WESTSIDE PRISON RECEPTION CENTER

This Draft Environmental Impact Statement (Draft EIS) for the proposed *Westside Prison Reception Center* has been prepared in compliance with the State Environmental Policy Act (SEPA) of 1971 (Chapter 43.21C, Revised Code of Washington); the SEPA Rules (Chapter 197-11, Washington Administrative Code); and rules adopted by the Department of Corrections implementing SEPA –Environmental Policies and Procedures Code (Ordinance ___). Preparation of this EIS is the responsibility of the proponent: Washington State Department of Corrections, and based on a scoping process has directed the areas of research and analysis that were undertaken in preparation of this EIS. This document is not an authorization for an action, nor does it constitute a decision or a recommendation for an action. In its final form – as a Final EIS – it will accompany the *Proposed Action* and will be considered in making final decisions concerning the siting, construction, development and operation of the proposed *Westside Prison Reception Center.*

Date of Draft EIS Issuance..... **_, 2011**

Dates of Draft EIS Public Meetings:

- … **Public Meeting #1 –:** ..... **_, 2011**
- … **Public Meeting #2 –:** ..... **_, 2011**
- … **Public Meeting #3 –:** ..... **_, 2011**

Please refer to pg. v of this Draft EIS or the following DOC website for the time and location of each meeting: **http://www.doc.wa.gov/business/capitalprograms/prisonsiting**

Date Comments are Due on the Draft EIS ..... **_, 2011**

--PREFACE--

The principal purposes of this Draft Environmental Impact Statement (Draft EIS) are to identify and evaluate probable significant environmental impacts that could result from siting, constructing and operating the proposed *Westside Prison Reception Center* at any one of the site alternatives, and to identify relevant measures to mitigate impacts identified.

Analysis contained in this Draft EIS evaluates the probable significant adverse environmental impacts of three site alternatives and the No Action Alternative. This Draft EIS also includes other information, not required by SEPA, for the information of the public and decision-makers.

This Draft EIS does not authorize a specific action or alternative nor does it recommend for or against a particular course of action. It is one of several key documents that will be considered in the decision-making processes for the Proposal. A list of expected regulatory actions, including: licenses, permits and approvals is contained in the **Fact Sheet** to this Draft EIS (pgs. *ii-iii*) in conjunction with each site alternative; the Final Environmental Impact Statement (Final EIS) associated with this project will accompany the applications specifically associated with the permit processes for the selected site and will be considered as the final environmental (SEPA) document relative to those applications.

The environmental elements that are analyzed in this Draft EIS were determined as a result of the formal, public EIS scoping process, which occurred from April 22, 2011, through May 13, 2011. The SEPA Determination of Significance/Scoping Notice was mailed to numerous agencies and organizations, as well as owners and current occupants of parcels located within 500 feet of the three site alternatives. Three Scoping Meetings/Open Houses were held (May 3rd, 4th and 6th) in the general vicinity of each site alternative, attended by approximately 43 individuals. During the EIS Scoping period, written comments were received from 24 agencies, organizations and individuals and public testimony was received from 17 individuals. Following review of the written comments and testimony, DOC determined the issues and alternatives to be analyzed in this Draft EIS. They include 16 broad areas of environmental review consisting of: earth; air quality; water resources, plants and animals; energy and natural resources; environmental health/environmental site hazards; noise; historic resources; cultural resources; land use; relationship to plans, polices and regulations; aesthetics; transportation; population, housing and employment; utilities; public services; and economic-related issues. The decision to address all these areas does not represent a conclusion that there are probable significant adverse environmental impacts with respect to each of them; rather that one or more significant impacts could occur at least at one site alternative.

The Table of Contents for this Draft EIS is contained on pgs. vii-x of the **Fact Sheet**. In general, the Draft EIS is organized into four major chapters:

- **Fact Sheet** (immediately following this *Preface*) provides an overview of the proposed project, the site alternatives, permits and major approvals needed, contact information and the Table of Contents;
- **Chapter 1** (beginning on page 1-1) summarizes the description of the proposed project, the site alternatives, and the No Action Alternative, as well as provides a summary of environmental impacts, mitigation measures, and significant unavoidable adverse impacts;
- **Chapter 2** (beginning on page 2-1) provides a detailed description of the *Proposed Actions*, including, the site alternatives and the No Action Alternative; and,
- **Chapter 3** (beginning on page 3-1) is an analysis of potential impacts in the subject areas mentioned above for each alternative, including the probable significant environmental impacts that could result from siting, construction and operation of the *Westside Prison Reception Center* at any of the site alternatives. This chapter also identifies relevant mitigation measures and significant unavoidable adverse impacts.

FACT SHEET

Name of Proposal	**Westside Prison Reception Center**
Proponent	Washington State Department of Corrections (DOC)
Location	There are three alternative sites under consideration as the location for the proposed *Westside Prison Reception Center*; they include: ■ **Bremerton** – south of SR 3 and northeast of SW Lake Flora Road in Bremerton; ■ **Mason County** – south of SR 102 and northeast of the existing Washington State Correctional Center near Shelton; ■ **Thurston County** – 20311 Old Highway 9 SW in Grand Mound.
Proposed Actions	The *Proposed Actions* involve siting, construction and operation of a prison reception center at any one of the three site alternatives, and other actions that may be taken to authorize or facilitate the siting, construction and operation of the reception center. Key elements of the proposal include the following: ■ The proposed 1,024 bed *Westside Prison Reception Center* would contain approximately 356,000 sq.ft. of building area and would be located on roughly a 50-acre site. It is anticipated that the reception center would require a staff of approximately 478 personnel.
EIS Alternatives	Three site alternatives are evaluated in this Draft EIS, together with a No Action Alternative. The site alternatives are noted above with regard to location and each of the development alternatives are described in detail in **Chapter 2** of this Draft EIS. Major participating agencies include: the City of Bremerton, Mason County, and Thurston County.
SEPA Responsible Official	**David B. Jansen, P.E., LEED AP** Director of Capital Programs WA Department of Corrections P.O. Box 41112, Mail Stop 41112 Olympia, WA 98504-1112 *Telephone*: 360.725.8352
Final Actions	■ Selection of a site for the proposed *Westside Prison Reception Center*; ■ Subsequent approvals/permits by the jurisdiction in which

the proposed *Westside Prison Reception Center* is located to authorize development, construction and operation of the facility, as well as infrastructure improvements to serve the facility; and,

- Decisions by DOC to acquire property for purposes of development and construction of the facility.

Phased Environmental Review[1]

This project-level EIS has been prepared for the proposed *Westside Prison Reception Center* based on information that is currently available and that has been prepared in support of this Draft EIS. It is anticipated that no subsequent environmental review of this proposal will be necessary. If, however, significant changes occur to the project following issuance of the Final EIS or new environmental information is identified, the SEPA Lead Agency may determine that subsequent environmental analysis is necessary in order to address the project changes and/or the new environmental information.

Required Approvals and/or Permits

Preliminary investigation indicates that the following approvals and/or permits may be required for the proposed *Westside Prison Reception Center* from agencies with jurisdiction.[2] The approvals/permits pertain to development, construction and operation of the proposed facility and to zoning amendments or other regulatory actions that may allow or facilitate development, construction and operation of the proposed facility at a particular site. Additional permits/approvals may be identified during the review process associated with specific elements of the project.

Approvals <u>Common to All</u> Jurisdictions[3]

<u>State Agencies</u>

- **State of Washington, Department of Labor & Industries**
  - Elevator Permits
- **State of Washington, Department of Health**
  - Commercial Kitchen Approval

Required Approvals and/or Permits (continued)

<u>Regional Agencies</u>

- **Puget Sound Clean Air Agency**
- **Olympic Region Clean Air Agency**
  - Asbestos Surveys (*possibly required* in conjunction with building renovation/demolition)
  - Demolition Permit(s)
- **Utility Service Providers**
  - Water, Wastewater Service Availability

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1 WAC 197-11-060(5)

2 An agency with jurisdiction is "an agency with authority to approve, veto, or finance all or part of a nonexempt proposal (or part of a proposal)" (WAC 197-11-714 (3). Typically, this refers to a local, state or federal agency with licensing or permit approval responsibility concerning the proposed project.

3 This applies to all three site alternatives.

Local Agencies

- Demolition Permit(s)
- Building Permit
- Grading / Shoring Permit
- Mechanical Permits
- Electrical Permits
- Plumbing Permits
- Utility Extension Agreements
- Water Service
- Sewer Service
- Comprehensive Drainage Control Plan Approval
- Large-Parcel Drainage Control Plans with Construction Best Management Practices and Erosion and Sediment Control Approval
- Street improvement Approval (e.g. curb-cut and/or sidewalk modifications)
- Signage Approvals
- Occupancy Permit

Approvals Unique to Each Jurisdiction[4] or Site

Bremerton

- Section 404 Permit (U.S. Army Corps of Engineers)
- Section 401 Permit (WA Department of Ecology)
- Part 77 aeronautical review (FAA)
- Essential Public Facility Process
- Conditional Use Permit

Mason County Site

- Special Use Permit – FAR reduction (Hearing Examiner)

Thurston County Site

- Special Use Permit – location standards (Hearing Examiner)

Authors and Principal Contributors to this EIS

This *Westside Prison Reception Center* EIS has been prepared under the direction of the Washington State Department of Corrections, as SEPA Lead Agency. Research and analysis associated with this EIS were provided by the following consulting firms:

- **EA | Blumen** – lead EIS consultant; document preparation; environmental analysis – energy (greenhouse gas emissions), land use, population/housing/employment, aesthetics, light/glare, and public services;
- **AHBL** – water resources; plants and animals; utilities; relationship to plans, policies and regulations
- **BERK** – economic/fiscal;

[4] This applies to all three site alternatives.

- **EHS-International, Inc.** – environmental health;
- **ENVIRON International Corp.** – air quality, noise;
- **GeoEngineers –** geotechnical;
- **Heffron Transportation, Inc.** – transportation, circulation and parking;
- **Integrus Architecture, P.S.** – site plans, aesthetics (viewshed photosimulations);
- **MW Consulting Engineers** – energy and natural resources;
- **SWCA** – cultural resources
- **BOLA Architecture + Planning** – historic resources

Location of Background Data

EA | Blumen
720 Sixth Street S., Suite 100
Kirkland, Washington 98033
Telephone: 425.284.5401

David B. Jansen, P.E., LEED AP
Director of Capital Programs
WA Department of Corrections
P.O. Box 41112, Mail Stop 41112
Olympia, WA 98504-1112
Telephone: 360.725.8352

Date of Issuance of this Draft EIS

__, 2011

Date Draft EIS Comments Are Due

__, 2011

Written comments are to be submitted to:
Washington State Department of Corrections
Attn: David B. Jansen, P.E., LEED AP
Director of Capital Programs
WA Department of Corrections
P.O. Box 41112, Mail Stop 41112
Olympia, WA 98504-1112

Or via email to:

http://www.doc.wa.gov/business/capitalprograms/prisonsiting

-or

receptioncentersiting@doc.wa.gov

Date of Draft EIS Public Meetings

__ 2011

Open house and public meetings concerning the Draft EIS are scheduled for:

- **Bremerton:**..... **__, 2011**
  ***Location* – Bremerton City Hall**
  City Council chambers
  1st floor
  Norm Dicks Government Center
  345-6th St., Bremerton

- **Mason County:**..... **_, 2011**
  ***Location* – Mason County Public Works**
  100 W. Public Works Dr.
  Shelton

- **Thurston County:**..... **_, 2011**
  ***Location* – Rochester High School**
  Commons Room
  19800 Carper Road Southwest
  Rochester

All public meetings will include the following schedule:

- **6:00 pm – 6:30 pm** – Open House;
- **6:30 pm – 6:35 pm** – Introductions;
- **6:35 pm – 6:50 pm** – Overview of the Proposed *Westside Prison Reception Center* and Site Alternatives;
- **6:50 pm – 7:00 pm** – Overview of the EIS Process;
- **7:00 pm** – Public Comments Regarding the Draft EIS; and
- Concluding Remarks Following Public Comments.

Date of Draft EIS Public Meetings (continued)

The purpose of each of the public meetings is to provide an opportunity for agencies, organizations and individuals to review information concerning the Draft EIS and to present oral comments on the Draft EIS – in addition to submittal of written comments.

Availability of this Draft EIS

Copies of this Draft EIS have been distributed to agencies, organizations and individuals noted on the Distribution List (**Appendix A** to this document). Notice of Availability of the Draft EIS has been provided to organizations and individuals that requested to become parties of record, that provided EIS Scoping comments and owners/residents or businesses that are located within 500 feet of each of the site alternatives.

The Draft EIS can be reviewed at the following public libraries:

Bremerton
Kitsap Regional Library – Downtown Bremerton
612 5th Street
Bremerton, WA 98310

Shelton
Shelton Timberland Library
710 W. Alder Street
Shelton, WA 98584

Grand Mound
Rochester Community Library
10140 Highway 12 SW
Rochester, WA 98579

A limited number of complimentary copies of this Draft EIS are available – while the supply lasts -- either as a CD or hardcopy from __, which is located __. Additional copies may be purchased from the DOC for the cost of reproduction.

This Draft EIS and the appendices are also available online at:

http://www.doc.wa.gov/business/capitalprograms/prisonsiting

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CHAPTER 1

Summary

CHAPTER 1

SUMMARY

This chapter provides a summary of the Draft Environmental Impact Statement (EIS) for the proposed *Westside Prison Reception Center*. It briefly describes the *Proposed Actions* and EIS alternatives, one of which is the No Action Alternative (see **Chapter 2** for the complete description of the *Proposed Actions* and alternatives); it also highlights significant impacts, mitigation measures and significant unavoidable adverse impacts (see **Chapter 3** for the complete analysis of impacts). The summary matrix provided in this chapter contains a brief overview of environmental impacts for the *Proposed Actions* at the three alternative sites. A comparison matrix is also provided for the three alternative sites to indicate the relative level of impact. These matrices are followed by a list of relevant mitigation measures and a summary of significant unavoidable adverse impacts.

1.1 Site Location

This Draft EIS analyzes three alternative sites for the proposed *Westside Prison Reception Center* including:

- **Bremerton** Site – Southeast of SR-3 and northeast of SW Lake Flora Road in Bremerton;
- **Mason County** Site – South of SR-102 and northeast of the Washington Correctional Center (WCC) near Shelton; and,
- **Thurston County** Site – 20311 Old Highway 9 SW in Grand Mound.

1.2 Proposed Actions

The *Proposed Actions* involve siting, construction and operation of a prison reception center, including regulatory decisions necessary to accomplish the project. Key elements of the proposed project include the following:

- The proposed *Westside Prison Reception Center* would contain approximately 356,000 sq. ft., with 1,024 beds and reception center services, and would provide parking for up to 400 vehicles, and,
- Prison reception center services provided by the proposed facility would include new offender assessments in the areas of physical and mental health, security and management needs, and other needs such as education and chemical dependency treatment. After completion of reception center services, offenders would be transferred from the prison reception center to an assigned prison facility for long-term incarceration.

1.3 Purpose of Environmental Review

This Draft EIS is intended to satisfy SEPA requirements and is one of several key documents that will be considered in the decision-making process for the proposed *Westside Prison Reception Center*. This Draft EIS identifies and evaluates the probable significant impacts that could result from siting, constructing and operating the proposed prison reception center at any one of three possible sites, as well as probable significant impacts associated with the related land use actions, permits and approvals that are contemplated (refer to the **Fact Sheet** for a listing of required permits and approvals). This document also identifies relevant measures to mitigate identified significant impacts. This document does not authorize a specific action or alternative, nor does it recommend for or against a particular course of action.

This project-level Draft EIS has been prepared for the proposed *Westside Prison Reception Center* based on relevant information that is currently available and information prepared in support of this EIS. It is anticipated that no subsequent environmental review of the *Proposed Actions* will be necessary. If, however, significant changes occur to the *Proposed Actions* following issuance of the Final EIS, or new environmental information is identified, the Department of Corrections may determine that subsequent environmental analysis is necessary in order to address the project changes and/or new environmental information.

1.4 EIS Alternatives

Three alternative sites and a No Action Alternative have been identified and analyzed in this Draft EIS. The site alternatives are noted above with regard to location, and each of the alternatives is described in detail in **Chapter 2** of this Draft EIS.

1.5 Impact Summary Matrix

The following summary matrix highlights the environmental impacts that would potentially result from implementation of the *Proposed Actions* at each of the three alternative sites. This summary table is not intended to be a substitute for the complete discussion of each element that is contained in **Chapter 3**. Following this summary matrix, is a comparison matrix to indicate the comparative level of impact between alternatives for each element. A list of relevant mitigation measures and a summary of significant unavoidable impacts are then provided.

The Bremerton Site is presented first in the following table, consistent with the presentation of the site alternatives in other sections of the Draft EIS. As possible and appropriate, the other sites are then compared to the Bremerton Site. It should be noted that the sites are not listed in any ranked order. The placement of the Bremerton Site in the first column is based on alphabetical order and is not intended to indicate that environmental impacts would be more or less severe at this site than at any of the other sites.

Table 1-1
SUMMARY OF IMPACTS
WESTSIDE PRISON RECEPTION CENTER DRAFT EIS

Element	Potential Impacts	Bremerton Site	Mason County Site	Thurston County Site
EARTH				
Construction	*Site Grading*	Based on the preliminary grading concept, approximately 320,000 cubic yards of cut and fill would be required for development of the prison reception center at this site (cut and fill would be balanced).	Based on the preliminary grading concept, approximately 120,000 cubic yards of cut and fill would be required for development of the prison reception center at this site (cut and fill would be balanced)..	Based on the preliminary grading concept, approximately 35,000 cubic yards of cut and fill would be required for development of the prison reception center at this site. Because the amount of available construction area on this site is limited, it is possible that up to 5,000 cubic yards of soil could be transported to/from the site.
	Building and Infrastructure Support	Conventional spread footings would likely be used for building foundation support. Settlements of structures on existing recessional outwash soil and structural fill would be expected to be minor. Removal of peat soils in the northeastern portion of the site may be required to preclude potential settlement issues.	Conventional spread footings would likely be used for building foundation support. Settlements of structures on existing recessional outwash soil and structural fill would be expected to be minor. Removal of some surficial organic material from beneath proposed structure and pavement locations may be required to preclude potential settlement issues.	Conventional spread footings would likely be used for building foundation support. Settlements of structures on existing recessional outwash soil and structural fill would be expected to be minor.
	Geotechnical Hazards & Building/Site Safety and Stability	Proposed development could occur in the following geotechnical hazard areas identified onsite: • Steep slopes/landslide hazard areas • Seismic hazard areas (earthquake induced sliding) • Erosion hazards. Appropriate building design and other geotechnical measures would be incorporated into the building/site design and no significant impacts to building stability and safety would be expected.	Potential impacts would be similar to the Bremerton Site.	Potential impacts would be similar to the Bremerton Site.
	Groundwater	Shallow groundwater may be encountered onsite during excavation activities. Standard temporary dewatering measures would be implemented, as necessary, during construction and no significant impacts to site stability would be anticipated.	Potential groundwater impacts would be similar to the Bremerton Site.	Potential groundwater impacts would be similar to the Bremerton Site.
Operations	*Geotechnical*	Operation of the proposed prison reception center at this site would not be anticipated to result in geotechnical-related significant impacts.	Operation of the proposed prison reception center at this site would not be anticipated to result in geotechnical-related significant impacts.	Operation of the proposed prison reception center at this site would not be anticipated to result in geotechnical-related significant impacts.
	Groundwater	Increases in impervious surface area associated with development of the site could cause a net reduction in groundwater recharge and shallow groundwater flow during operation of the prison reception center. The potential reduction in recharge to regional aquifers would not be considered significant because of the remaining undeveloped area on and nearby the site. The potential for alteration of groundwater flow would be mitigated by the installation of impermeable seepage barriers; no significant impacts would be anticipated.	Potential operational groundwater impacts would be similar to the Bremerton Site.	Potential operational groundwater impacts would be similar to the Bremerton Site.

Element	Potential Impacts	Bremerton Site	Mason County Site	Thurston County Site
AIR QUALITY				
Construction	*Dust*	Site preparation and construction could generate dust from grading activities and would contribute to temporary localized increases in dust (ambient concentrations of suspended particulate matter). Measures to provide reasonable controls of emissions of dust would be implemented, and construction activities would not be expected to significantly impact air quality.	Potential construction-related dust impacts would be similar to the Bremerton Site.	Potential construction-related dust impacts would be similar to the Bremerton Site.
	Construction Equipment and Vehicle Emissions	Construction equipment and vehicles would emit air pollutants that would slightly and temporarily degrade local air quality, especially during earthwork activity. Standard construction measures would be implemented and no significant impacts would be anticipated.	Potential construction equipment and vehicle emissions impacts would be similar to the Bremerton Site.	Potential construction equipment and vehicle emissions impacts would be similar to the Bremerton Site.
	Construction Odors	Some construction activities would temporarily cause odors, particularly during paving operations using tar and asphalt. Measures to provide reasonable controls of emissions of construction odors would be implemented and, construction activities would not be expected to significantly impact air quality.	Potential construction odor impacts would be similar to the Bremerton Site.	Potential construction odor impacts would be similar to the Bremerton Site.
Operations	*Operational Vehicle Emissions*	Vehicular traffic traveling to and from the prison reception center would emit air pollutants. Carbon monoxide (CO) would be the pollutant emitted in the largest quantity. Projected traffic conditions at full occupancy with the proposed prison reception center would not substantially impact level of service standards at nearby intersections and would be unlikely to cause any significant air quality impacts.	Potential operational vehicle emission impacts would be similar to the Bremerton Site.	Potential operational vehicle emission impacts would be similar to the Bremerton Site.
PLANTS, ANIMALS, HABITAT AND SURFACE WATER RESOURCES				
Construction	*Plants/Trees*	Clearing and grading would require removal of the majority of the existing forest and understory vegetation within the site area. No endangered, threatened or protected plant species would be impacted. Clearing and grading activities would comply with applicable regulations; no significant impacts would be anticipated.	Construction-related vegetation impacts would be similar to the Bremerton Site.	The portion of the Thurston County Site proposed for development is currently developed so the amount of vegetation required to be removed to accommodate development would be significantly less than the Mason County or Bremerton sites. Development would require the removal of 22 mature trees and 50 deciduous trees. No endangered, threatened or protected plant species, including on or offsite Oregon white oaks, would be impacted.
	Animals and Habitat	Potential impacts to wildlife species from the proposed development would result from both habitat removal and disturbance associated with construction. Removal of vegetation on the Bremerton Site would result in the total area reduction of wildlife habitat on the site. No endangered, threatened or protected animal species would be impacted. Displaced wildlife species would be expected to colonize other habitat in the vicinity or return on undisturbed onsite vegetation following construction. No significant impacts would be anticipated.	Construction-related animal and habitat impacts would be similar to the Bremerton Site.	The types of impacts to animals and habitat on the Thurston County Site would be similar to the Bremerton Site but the level of impacts would be lower due to the reduced amount of vegetation removal assumed on the Thurston County site.

Element	Potential Impacts	Bremerton Site	Mason County Site	Thurston County Site
	Wetlands and Surface Water Resources	Proposed development would unavoidably impact approximately 45,289 sq. ft. of onsite Category III wetlands. Wetlands impacted by the proposal are isolated and are not connected via surface water hydrology or hydric soils to other wetland systems or streams proposed to remain. Mitigation for impacts to wetlands would comply with federal, state and local regulations and would consist of onsite wetland mitigation at a 2:1 ratio comprised of a 90,576 sq. ft. wetland mitigation project. With implementation of the proposed mitigation, no significant impacts would be anticipated. Proposed utility extensions would not impact onsite or offsite wetlands or surface water resources or their buffers; no significant impacts would be anticipated. The proposal would implement a temporary sediment and erosion control plan and a stormwater pollution prevention plan; no significant impacts would be anticipated.	Proposed development would not result in significant impacts to the onsite Category I wetland, its 200 ft. buffer or the offsite, adjacent Goldsborough Creek. Proposed utility extensions would not impact onsite or offsite wetlands or surface water resources or their buffers; no significant impacts would be anticipated. The proposal would implement a temporary sediment and erosion control plan and a stormwater pollution prevention plan; no significant impacts would be anticipated.	Proposed development would not result in direct impacts to nearby offsite wetlands, Prairie Creek or the Chehalis River or their "functional buffers" as defined by Thurston County Code 17.15.940. A potential expansion of the existing sewer pump station located within the functional buffer of offsite Wetland B could impact up to 200 sq. ft. of buffer area. If development requires impacts to the functional buffer area, mitigation would be provided in accordance with the Thurston County Code. With implementation of the required mitigation; no significant impacts would be anticipated. The proposal would implement a temporary sediment and erosion control plan and a stormwater pollution prevention plan; no significant impacts would be anticipated.
Operations	*Plants/Trees*	Operations would not result in significant impacts to endangered, threatened, or protected plant species.	Operations would not result in significant impacts to endangered, threatened, or protected plant species.	Operations would not result in significant impacts to endangered, threatened, or protected plant species.
	Animals and Habitat	Proposed lighting would include cut-off luminaries to reduce light spillage to wetlands and stream areas. The preservation of natural areas such as forested areas, wetland and wetland buffers would serve as a conservation measure to minimize the impacts of development on wildlife and wildlife habitat. With implementation of the proposed mitigation, no significant impacts would be anticipated.	Potential operational impacts to animals and habitat would be the same as the Bremerton Site.	Potential operational impacts to animals and habitat would be the same as the Bremerton Site.
	Wetlands and Surface Water Resources	A permanent stormwater control system would be provided, in accordance with the 2005 Ecology Manual. Stormwater treatment and infiltration would occur outside of the existing wetlands to remain and their buffers. The system would ensure water quality of surface water features and would not alter the amount of recharge to the remaining onsite wetlands or streams.	A permanent stormwater control system would be provided, in accordance with the 2005 Ecology Manual. Stormwater treatment and infiltration would occur outside of the existing wetland and its buffer. The system would ensure water quality of surface water features and would not alter the amount of recharge to the onsite wetlands and Goldsborough Creek. No significant impacts would be anticipated.	A permanent stormwater control system would be provided, in accordance with the 2005 Ecology Manual. Stormwater treatment and infiltration would occur outside of the existing offsite wetlands and their buffers. The system would ensure water quality of surface water features and would not alter the amount of recharge to the offsite wetlands, Prairie Creek or the Chehalis River. No significant impacts would be anticipated.
ENERGY (GREENHOUSE GASES)				
	Greenhouse Gas Emissions	Greenhouse gas emissions from the proposed prison reception center (construction-related, transportation and operations) at this site would increase from existing conditions and could be approximately 508,254 $MTCO_2e$ over the lifetime of the facility (approximately 65 years) without mitigation.	Greenhouse gas emissions from the proposed prison reception center (construction-related, transportation and operations) at this site would increase from existing conditions and could be approximately 520,703 $MTCO_2e$ over the lifetime of the facility (approximately 65 years) without mitigation	Greenhouse gas emissions from the proposed prison reception center (construction-related, transportation and operations) at this site would increase from existing conditions and could be approximately 495,437 $MTCO_2e$ over the lifetime of the facility (approximately 65 years) without mitigation

Element	Potential Impacts	Bremerton Site	Mason County Site	Thurston County Site
ENVIRONMENTAL HEALTH/ENVIRONMENTAL SITE HAZARDS				
Construction	*Disturbance/Release of Pollutants and Hazardous Materials*	The potential exists for certain environmental-health-related impacts to occur during construction activities associated with development of the proposed prison reception center on this site including: • Generating air pollutants as a result of dust from demolition, earthwork and/or emissions from construction vehicles. • Accidental spills of construction-related chemicals. With implementation of required health and safety measures, no significant impacts would be expected.	Potential construction-related environmental health impacts would be similar to the Bremerton Site.	Potential construction-related environmental health impacts would be similar to the Bremerton Site. with the addition of the following item. • Exposure of asbestos-containing materials or lead-based paints from demolition of existing structures associated with the former Maple Lane Juvenile facility. With implementation of required health and safety measures, no significant impacts would be expected.
Operations	*Hazardous Medical Waste*	The proposed prison reception center would include medical uses that could generate hazardous materials associated with medical treatment. Medical waste materials would be stored and disposed of in accordance with all applicable local and state regulations; no significant impacts would be expected.	Potential hazardous medical waste impacts would be similar to the Bremerton Site.	Potential hazardous medical waste impacts would be similar to the Bremerton Site.
	Emergency Generators	Diesel generators and tanks would be provided onsite for emergency backup power. All generators and tanks would meet regulatory requirements; no significant impacts would be anticipated.	Potential emergency generator impacts would be similar to the Bremerton Site.	Potential emergency generator impacts would be similar to the Bremerton Site.
	Propane Heating	The site will have on site propane storage to back-up the utility gas supply when curtailed by the local utility. Propane would be stored in above-ground tanks that would meet regulatory requirements; no significant impacts would be anticipated.	Potential propane heating impacts would be similar to the Bremerton Site.	Propane is not proposed for heating at the Thurston County Site. The existing heating plant will be served by the existing above-ground 4,000 gallon diesel tank and supplemented by a new above-ground diesel storage tank.
	Bus Barn Operations	The proposal would include development of a bus barn on the Bremerton Site which would be a stand-alone building for maintaining fleet vehicle including an outdoor fueling station (with above-ground storage tanks for diesel and gasoline), an outside vehicle wash facility and an indoor vehicle maintenance area. Hazardous waste generated from the bus barn activities would be disposed of in accordance with all applicable laws and regulations; no significant impacts would be anticipated.	No bus barn facility would be developed on the Mason County Site and bus barn operations would be centralized at the existing, nearby Washington Correctional Center. No impacts would be anticipated.	Potential bus barn operational impacts would be similar to the Bremerton Site.
NOISE				
Construction	*Construction Noise*	Construction noise such as the use of equipment during clearing, grading and building erection would be audible at the nearest residences 500 feet east of the site and would cause short-term noise levels to increase periodically over the 2 year construction period. With implementation of proposed mitigation measures, no significant impacts would be anticipated.	Construction noise such as the use of equipment during clearing, grading and building erection would be audible (and potentially intrusive) at the nearest residence 250 feet west of the site and would cause short-term noise levels to increase periodically over the 2 year construction period. With implementation of proposed mitigation measures, no significant impacts would be anticipated.	Construction noise such as the use of equipment during clearing, grading and building erection would be audible (and potentially intrusive) at the nearest residence 300 feet north of the site and would cause short-term noise levels to increase periodically over the 2 year construction period. With implementation of proposed mitigation measures, no significant impacts would be anticipated.

Element	Potential Impacts	Bremerton Site	Mason County Site	Thurston County Site
Operations	*Operational Noise Compliance*	Operation of the prison reception center facility could result in new noise sources from vehicular traffic, mechanical equipment and loading dock activities. Modeling results indicate levels from operational noise would be between 37 – 43 dBA at the residences nearest to the site, within the day/night regulatory noise limits of 55-70 dBA. Modeling results indicate the operation of the facility would not result in a significant change in the general character of the noise environment adjacent to the site.	Operation of the prison reception center facility could result in new noise sources from vehicular traffic, mechanical equipment and loading dock activities. Modeling results indicate levels from operational noise would be approximately 37 dBA at the residences nearest to the site, within the regulatory noise limits of 55 dBA (daytime) and 45 dBA (nighttime). Modeling results indicate the operation of the facility would not result in a significant change in the general character of the noise environment adjacent to the site.	Operation of the prison reception center facility could result in new noise sources from vehicular traffic, mechanical equipment and loading dock activities. Modeling results indicate levels from operational noise would be between 41 – 49 dBA at the residences nearest to the site due to rooftop mechanical equipment. The worst-case projected operational noise level of 49 dBA at two receptor locations (T2 and T3) across Old Highway 9 from the site would exceed the nighttime base noise limit of 45 dBA. With implementation of mitigation measures such as noise barriers around rooftop HVAC units, no significant impacts would be anticipated. Sound levels at other locations would comply with day/night noise limits. Modeling results indicate the operation of the facility would result in a slight increase in noise levels but would not result in a significant change in the general character of the noise environment adjacent to the site.
LAND USE				
Construction	*Construction Land Use Impacts*	Site preparation and construction could result in temporary impacts to sensitive adjacent land uses (such as the residential uses at the intersection of SR 3 and SW Lake Flora Road) on a limited basis including: dust from clearing and grading; emissions from construction vehicles and equipment; increased noise levels; light and glare; and increased traffic. Overall, due to the temporary nature of construction, no significant impacts would be anticipated.	Potential construction-related land use impacts would be similar to the Bremerton Site. Nearby sensitive uses would be the residential uses located adjacent to the east of the proposed site.	The types of construction-related land use impacts associated with development on the Thurston County Site would be similar to the Bremerton site but would be less due to the fact the site is already developed and would require less clearing and grading. Nearby sensitive uses would be the residential uses north of Old Highway 9 SW.
Operations	*Conversion of Uses*	Development of the proposed prison reception center on the Bremerton Site would transition an undeveloped, vegetated site to a prison reception center. No existing uses would be displaced and no significant impacts would be anticipated.	Potential land use impacts associated with the conversion of existing uses would be similar to the Bremerton Site.	Development of the proposal on the Thurston County Site would transition a developed site that previously accommodated a juvenile detention center to an adult prison reception center use. The former juvenile detention center facility was closed in June 2011; therefore, no existing uses would be displaced and no significant impacts would be anticipated.
	Land Use Intensity	Activity levels on the site would increase substantially from the existing conditions with operation of the prison reception center. New activity would primarily relate to vehicle trips to and from the site associated with employees, inmate transports, visitors, deliveries and volunteers. No significant impacts would be anticipated.	Potential land use impacts related to land use intensity would be similar to the Bremerton Site.	Activity levels on the site would increase from the existing conditions with operation of the prison reception center but would be similar to the activity levels of the previous juvenile detention center use. Activity levels would primarily relate to vehicle trips to and from the site associated with employees, inmate transports, visitors, deliveries and volunteers. No significant impacts would be anticipated.

Element	Potential Impacts	Bremerton Site	Mason County Site	Thurston County Site
	Relationship to Surrounding Uses	The proposed prison reception center would be compatible with existing nearby undeveloped, commercial, municipal and industrial uses. Potentially sensitive land uses in the area include the single-family residential uses to the west of the site near the intersection or SR 3 and SW Lake Flora Road. Significant land use impacts to these adjacent uses would not be anticipated due to the distance from the site, intervening uses and topographic barriers.	The proposed prison reception center would be compatible with existing nearby undeveloped, municipal and state (existing Washington Correctional Center) uses. Potentially sensitive land uses in the area include the single-family residential use located to the east of the site. Significant land use impacts to this adjacent residential use would not be anticipated due to the distance from the building site and landscape buffers.	The proposed prison reception center would be compatible with the existing nearby undeveloped, municipal (water/sewer treatment plant) and agricultural uses in the area. Potentially sensitive land uses in the area include the residential uses to the north and northeast (north of Old Highway 9) and west (west of the adjacent dairy farm); school uses approximately 0.5 miles west of the site; and, the adjacent public driving range. Significant land use impacts to these adjacent uses would not be anticipated due to the distance from the site, intervening uses and topographic barriers.
	Building Height, Bulk and Scale	The height of the proposed prison reception center on the Bremerton Site would be similar to other buildings in the site vicinity. The bulk and scale of the proposed facility would be greater than nearby residential structures but would similar to other large-scale buildings in the area such as the adjacent Bremerton National Airport. No significant height, bulk or scale impacts would be anticipated.	The height, bulk and scale of the proposed prison reception center on the Mason County Site would be similar to other buildings in the site vicinity such as the nearby Washington Correctional Center, Washington Patrol Academy and Sanderson Field. No significant height, bulk or scale impacts would be anticipated.	The height of the proposed prison reception center on the Thurston County Site would be similar to other buildings in the site vicinity. The bulk and scale of the proposed facility would be greater than nearby residential structures but would similar to other large-scale buildings in the area such as the adjacent dairy farm. No significant height, bulk or scale impacts would be anticipated.
RELATIONSHIP TO PLANS, POLICIES AND REGULATIONS				
	Essential Public Facilities Process	The Growth Management Act requires city and county governments to coordinate on the siting of public capital facilities of countywide or statewide significance, which would include correctional facilities. The Kitsap Countywide Planning Policies (Element G) establish a process and review criteria for the siting of such facilities. The criteria include a limitation that "Public facilities shall not be located in designated resource lands, critical areas, or other areas where the siting of such facilities would be incompatible." Locating a prison reception center on the Bremerton Site would require the filling of approximately one acre of wetlands; mitigation would be provided through a 2-acre wetland mitigation project. Bremerton Land Use Policy (LU19B) also provides general principles for the siting of such facilities. The Bremerton Site is compatible with these principles.	The Mason Countywide Planning Policies (CWPP 4.1) state that the county and the cities therein "shall develop a cooperative regional process to site essential public facilities." Mason County Capital Facilities Policy (CF401) reiterates the cooperative emphasis on siting essential public facilities. Essential public facilities are allowed within the zone in which the Mason County Site is located with a Special Use Permit.	The Thurston Countywide Planning Policies (IV) call the county and its cities and subareas to cooperatively establish a process for siting county-wide and state-wide capital facilities and provides two general criteria. The Thurston County Site is consistent with these criteria. The Thurston County Capital Facilities Plan includes procedural requirements for siting essential public facilities and defines correctional facilities as a Type One facility. This process includes public notification 90 days prior to the submission of a permit application and an analysis of alternative sites, which this EIS provides.

Element	Potential Impacts	Bremerton Site	Mason County Site	Thurston County Site
	Consistency with Existing Comprehensive Plan Land Use Designation and Zoning	The City of Bremerton *Comprehensive Plan* and the South Kitsap Industrial Area Subarea Plan designates the site as M/IC, a Manufacturing and Industrial Center. The current zoning of the site is Industrial. Among the uses listed as conditionally permitted in the Industrial Zone by the Bremerton Municipal Code is Group Residential Facility – Class II. According to the Bremerton Zoning Code,[1] the definition of Group Residential Facility – Class II includes "*housing of persons needing correctional or mental rehabilitation*". Because the proposed *Westside Prison Reception Center* can be considered "*housing persons needing correctional rehabilitation*", the proposal is considered a conditionally permitted use in the Industrial Zone.	The *Mason County Comprehensive Plan* designates the site as Rural Residential – 20 Acres. Essential public facilities, such as the proposed *Westside Prison Reception Center*, are permitted with a special use permit if the proposal satisfies criteria as related to public health, safety and welfare, consistency with the comprehensive plan, hazardous conditions, adequate public facilities, compatibility with existing land uses and urban services. Development permitted as a Special Use is allowed to exceed the maximum building footprint of 3,000 sq. ft. established for the RR-20 zone. The RR-20 zone limits the Floor Area Ratio (FAR) to no more than 1:20, which would require a 356,000 sq. ft. building to be located on a site of approximately 164 acres, unless waived or reduced by the Hearing Examiner.	The Thurston County *Comprehensive Plan* and the *Grand Mound Subarea Plan* designates the site as a Planned Industrial Center. The current zoning of the site is Planned Industrial (PI). Thurston County Code Chapter 20.27 describes the PI zone, including purpose; permitted and special uses; and development and performance standards. Certain special uses, such as public correctional facilities, are also considered compatible uses within this district, subject to approval of a special use permit. Use-specific standards for a jail (or prison reception center if deemed an equivalent use) include limitations on location, such as not within one mile of a school and within 500 feet of a residential zone. The hearing examiner could lessen these location standards if, in his or her opinion, natural and man-made features provide effective separation.
	Airport Zones	Prison reception center development on the Bremerton Site would be located within Zone 6 (lowest safety risk zone) of the Bremerton National Airport. Zone 6 guidelines developed by WSDOT Aviation indicate that correctional facilities are a use that may be compatible with airport operations depending on the size, bulk, height, characteristics of the facility; the DOC would need to coordinate with the Port of Bremerton during design to assure compatibility with airport operations.	The Mason County Site is not located within the airport safety zone areas for Sanderson Field.	The Thurston County Site is not located within an airport safety zone area.
EMPLOYMENT, POPULATION AND HOUSING				
Construction	*Construction Impacts*	Development of the proposed prison reception center would generate up to approximately 175 temporary construction jobs over the 2-year buildout period. No significant construction-related population increases would be anticipated. Existing housing stock would be sufficient to accommodate temporary construction workers, as needed.	Development of the proposed prison reception center would generate up to approximately 175 temporary construction jobs over the 2-year buildout period. No significant construction-related population increases would be anticipated. Existing housing stock may not be sufficient to accommodate temporary construction workers, as needed, and would require employees to reside elsewhere, at a greater distance from the site.	Employment, population and housing construction issues would be similar to the Bremerton Site.
Operations	*Employment*	The proposed prison reception center would employ approximately 478 staff including 277 custody staff, 120 non-custody staff and 81 health services staff.	Employment associated with the prison reception center at this site would be similar to the Bremerton Site.	Employment associated with the prison reception center at this site would be similar to the Bremerton Site.
	Population	The 478 new employees at the proposed prison reception center would result in a population increase of approximately 1,200 new residents in the City of Bremerton and surrounding communities.	Population increases associated with the proposed prison reception center would be similar to the Bremerton Site.	Population increases associated with the proposed prison reception center would be similar to the Bremerton Site.
	Housing	Existing housing stock in the City of Bremerton and surrounding communities would be sufficient to accommodate assumed population increases.	Existing housing stock in the City of Shelton and surrounding communities would be sufficient to accommodate assumed population increases. Due to low vacancy rates, population increases could result in new housing demand over the long-term depending on the specific characteristics of available housing.	Existing housing stock in the City of Centralia and towns of Rochester and Grand Mound would be sufficient to accommodate assumed population increases.

[1] Bremerton Municipal Code, Chapter 20.94.030

Element	Potential Impacts	Bremerton Site	Mason County Site	Thurston County Site
AESTHETICS, LIGHT AND GLARE				
Construction and Operations	*Changes in the Aesthetic Character of the Site and Site Vicinity*	Development of the prison reception center at the Bremerton Site would change the aesthetic character of the site from undeveloped forested land to a primarily developed area containing two buildings (the prison reception center and bus barn), perimeter fencing, surface parking and open space/landscaping. The height and scale of the new buildings would be consistent with other nearby development such as the airport and light industrial facilities to the north.	Development of the prison reception center at the Mason County Site would change the aesthetic character of the site from undeveloped forested land to a primarily developed area containing one building (the prison reception center), perimeter fencing, surface parking and open space/landscaping. The height and scale of the new building would be consistent with other nearby development such as the airport and the existing nearby Washington Correctional Center.	Development of the prison reception center at the Thurston County Site would change the aesthetic character of the site from a former juvenile detention facility to a more densely developed area with a new building occupying a larger footprint where open space and several smaller buildings are presently located. The majority of redevelopment activities would occur in the area east of the maple tree-lined main access road. The height and scale of the new buildings would be consistent with the existing onsite buildings and other nearby development such as the dairy farm to the west.
	Changes in Views to the Site	The proposed facility would not be visible due to the presence of trees and vegetation, and the distance of the building from the roadway. Development of the prison reception center at the site would not significantly change the views to the site from adjacent roadways.	The proposed facility would not be visible due to the presence of trees and vegetation, and the distance of the building from the roadway. Development of the prison reception center at the site would not significantly change the views to the site from adjacent roadways.	The proposed facility would be partially visible from Old Highway 9 SW. The developed view would feature portions of the proposed facility in the background behind the existing fencing, which would be retained. The overall visual character would change from a partial view of multiple existing buildings, to a more densely developed site with larger building massing and scale. The new building would be closer to the perimeter fencing as compared to the existing view, where buildings are set back with open space.
	Light and Glare Impacts	The proposed prison reception center would introduce new sources of light and glare to the area during both construction and operation of the facility. At the Bremerton Site, the proposal would introduce light and glare sources to a previously undeveloped area; therefore, the overall level of light emanating from the site would be greater than existing conditions but the proposed levels would not be significant. With implementation of proposed mitigation measures, no significant impacts would be anticipated.	Potential light and glare impacts would be similar to the Bremerton Site.	The proposed prison reception center would introduce new sources of light and glare to the area during both construction and operation of the facility. The overall level of lighting and glare sources would be similar to that which occurred when the Maple Lane Juvenile Facility was operational on the site. No significant impacts would be anticipated.
CULTURAL RESOURCES				
Construction	*Cultural Resource Impacts during Construction*	Similar to most undeveloped properties in the Puget Sound lowlands, there is a possibility that pre-contact and historical archaeological resources could be present at the Bremerton Site. Archaeological deposits could be encountered during grading activities associated with the proposed facility. With implementation of an archaeological monitoring and discovery plan during certain construction activities, no significant impacts would be anticipated.	Potential cultural resource impacts during construction activities would be similar to the Bremerton Site.	Potential cultural resource impacts during construction activities would be similar to the Bremerton Site.
Operations	*Cultural Resource Impacts during Operations*	No impacts to cultural resources during operation of the proposed prison reception center would be anticipated.	No impacts to cultural resources during operation of the proposed prison reception center would be anticipated.	No impacts to cultural resources during operation of the proposed prison reception center would be anticipated.

Element	Potential Impacts	Bremerton Site	Mason County Site	Thurston County Site
HISTORIC RESOURCES				
Construction	*Historic Resources Impacts during Construction*	No historic resources were identified on or in vicinity of the site. Therefore no direct or indirect impacts to historic resources would be anticipated during construction of the proposed prison reception center facility.	No historic resources were identified on or in vicinity of the site. Therefore no direct or indirect impacts to historic resources would be anticipated during construction of the proposed prison reception center facility.	During construction, the potential exists for structural instability/undermining and temporary dirt and unintended damage to the NRHP-designated Administration Building. With implementation of construction monitoring and dust controls measures, significant impacts would not be anticipated.
Operations	*Historic Resources Impacts during Operations*	No historic resources were identified on or in vicinity of the site. Therefore no direct or indirect impacts to historic resources would be anticipated during operation of the proposed prison reception center facility.	No historic resources were identified on or in vicinity of the site. Therefore no direct or indirect impacts to historic resources would be anticipated during operation of the proposed prison reception center facility.	Development of the new prison reception center building in proximity to the existing, historic Administration Building and its associated historic site would change the visual context/character of this historic resource.
TRANSPORTATION				
Construction	*Construction Truck Trips*	Construction of the prison reception center at the Bremerton Site would require cut and fill of approximately 320,000 cubic yards of material. However, this earthwork is expected to occur on-site (balancing the cut and fill amounts) and no off-site transport is expected.	Construction of the prison reception center at the Mason County Site would require cut and fill of approximately 120,000 cubic yards of material. However, this earthwork is expected to occur on-site (balancing the cut and fill amounts) and no off-site transport is expected.	Construction of the prison reception center at the Thurston County Site would require cut and fill of approximately 35,000 cubic yards of material. However, most this earthwork is expected to occur on-site (balancing the cut and fill amounts). Approximately 5,000 cubic yards of material would be required to be transported from offsite requiring approximately 313 truckloads (or 626 truck trips) occurring over a several month time period which could result in approximately 15 truckloads per workday.
	Construction Traffic	The proposal would generate a noticeable amount of construction traffic (including truck traffic associated with transportation of building materials and construction employee trips) on area roadways. This traffic would not be expected to degrade intersection operations during off-peak hours. A construction transportation management plan would be prepared per City of Bremerton requirements. No significant impacts would be anticipated.	Potential construction-related traffic impacts would be similar to the Bremerton Site.	Potential construction-related traffic impacts would be similar to the Bremerton Site.
Operations	*Roadway Network*	The proposal would require construction of one site access driveway on SW Lake Flora road; no off-site road modifications are proposed.	The proposal would require construction of one site access driveway on SR 102/West Dayton Airport Road; no off-site road modifications are proposed.	The proposal would utilize the existing primary and secondary access driveways that served the former Maple Lane Juvenile Facility; no off-site road modifications are proposed.
	Traffic Volumes	The proposal would generate a daily trip increase of 994 vehicle trips with 149 in the AM peak hour and 149 in the PM peak hour.	The proposal would generate a daily trip increase of 994 vehicle trips with 149 in the AM peak hour and 149 in the PM peak hour.	The proposal would generate a daily trip increase of 994 vehicle trips with 149 in the AM peak hour and 149 in the PM peak hour. The former Maple Lane Juvenile Facility generated 554 daily trips with 36 in the AM peak hour and no trips in the PM peak hour. Based on these calculations, the proposal would present a net increase of 440 daily trips with 113 net new trips in the AM peak hour and 149 net new trips in the PM peak hour.

Element	Potential Impacts	Bremerton Site	Mason County Site	Thurston County Site
	Intersection Operations	The proposal would not change level of service operations at any intersections in the study area.	The proposal would not change level of service operations at any intersections in the study area.	The proposal would not change the overall level of service operation at any intersections in the study area but would increase the delay periods (and reduce the level of service) for movements at two study area intersections during the AM peak hour: • WB lefts from US 12 to Old Hwy 9 from LOS A to B • EB lefts from Old Hwy 9 to Old hwy 99 from LOS B to C No significant impacts would be anticipated.
	Vehicle Miles Traveled/Travel Time Analysis	The proposed prison reception center at the Bremerton Site would generate new employee and transport trips comprising: • 6,329,200 vehicle miles traveled per year • 166,050 annual vehicle hours	The proposed prison reception center at the Mason County Site would generate new employee and transport trips comprising: • 6,850,470 vehicle miles traveled per year • 162,480 annual vehicle hours	The proposed prison reception center at the Thurston County Site would generate new employee and transport trips comprising: • 5,878,340 vehicle miles traveled per year • 140,670 annual vehicle hours
	Site Access and Internal Circulation	The proposal would add one new access drive. All movements at the site access are expected to operate at LOS B or better during morning and evening peak hours.	Potential site access and internal circulation impacts would be similar to the Bremerton Site.	All movements at the two existing site access points are expected to operate at LOS B or better during morning and evening peak hours.
	Traffic Safety	No adverse traffic safety impacts would be anticipated with the addition of the proposed prison reception center traffic to area roadways.	Potential traffic safety impacts would be similar to the Bremerton Site.	Potential traffic safety impacts would be similar to the Bremerton Site.
	Transit	The proposed prison reception center is not anticipated to generate demand for transit services at the site since there is not an existing transit stop at or near the proposed site.	Potential transit impacts would be similar to the Bremerton Site.	Potential transit impacts would be similar to the Bremerton Site.
	Non-motorized Facilities	The proposed prison reception center is not anticipated to generate non-motorized trips (bicycle or pedestrian).	Potential impacts to non-motorized facilities would be similar to the Bremerton Site.	Potential impacts to non-motorized facilities would be similar to the Bremerton Site.
	Parking	The cumulative peak weekday parking demand is expected to be 368 vehicles between 12:30 – 1:30pm. Approximately 400 parking spaces would be provided onsite, sufficient to accommodate peak parking demand. No significant impacts would be anticipated.	Potential impacts to parking would be similar to the Bremerton Site.	Potential impacts to parking would be similar to the Bremerton Site.
PUBLIC SERVICES				
Construction	*Police*	During construction, calls for police services could be generated for trespassing, vandalism and theft of construction materials and for potential traffic incidents due to construction traffic; however, the number of calls would not be anticipated to be significant.	Potential construction-related impacts to police services would be similar to the Bremerton Site.	Potential construction-related impacts to police services would be similar to the Bremerton Site.
	Fire/EMS	During construction, calls for fire/EMS services could be generated for incidents related to on-site construction activities, construction-related traffic accidents and code/safety inspections; however, the number of calls would not be anticipated to be significant.	Potential construction-related impacts to fire/EMS services would be similar to the Bremerton Site.	Potential construction-related impacts to fire/EMS services would be similar to the Bremerton Site.

Element	Potential Impacts	Bremerton Site	Mason County Site	Thurston County Site
	Schools	No schools are located on or proximate to the Bremerton Site; no construction-related impacts would be anticipated.	No schools are located on or proximate to the Bremerton Site; no construction-related impacts would be anticipated.	Three schools are located approximately 0.5 miles from the Thurston County Site, but due to the distance from the site, no significant impacts from construction activities would be anticipated.
	Parks	No public parks or open space resources are located on or proximate to the site; no construction-related impacts would be anticipated.	No public parks or open space resources are located on or proximate to the site; no construction-related impacts would be anticipated.	No public parks and open space resources are located on the Thurston County Site but the Grand Mound Driving Range is located adjacent to the southeast of the site. Construction activities would result in periodic increases in dust and noise which could affect users of the adjacent driving range. Impacts would be temporary and periodic in nature, be mitigated in accordance with Thurston County requirements for construction activities and would not be anticipated to be significant.
Operations	*Police*	It is estimated that approximately 20.5 new calls for service to the Bremerton Police Department could be generated by the proposed prison reception center at the Bremerton Site. According to the Bremerton Police Department, no significant impacts to police services would be anticipated. Population increases associated with new employment generated by the proposed prison reception center could indirectly generate new calls for police services in the district where the facility is located and other nearby districts. The new calls for service would be anticipated to be distributed throughout several districts with no significant impacts to any single district.	It is estimated that approximately 20.5 new calls for service to the Mason County Sheriff's Department could be generated by the proposed prison reception center at the Mason County Site. According to the Mason County Sheriff's Department, no significant impacts to police services would be anticipated. Potential impacts to police services associated with new employment population increases would be similar to the impacts described for the Bremerton Site.	It is estimated that approximately 20.5 new calls for service to the Thurston County Sheriff's Office could be generated by the proposed prison reception center at the Thurston County Site. This number would be considerably less than the average of 82 calls per year generated by the juvenile detention facility that previously occupied the site. According to the Thurston County Sherriff's Office, no significant impacts to police services would be anticipated. Potential impacts to police services associated with new employment population increases would be similar to the impacts described for the Bremerton Site.
	Fire/EMS	It is estimated that the proposed prison reception center could generate approximately 1 new call for fire suppression services and 45 calls for emergency medical services/transport services per year to South Kitsap Fire and Rescue (SKFR), which is contracted by the City of Bremerton. According to the City of Bremerton, no significant impacts to fire or EMS services would be anticipated. Population increases associated with new employment generated by the proposed prison reception center could indirectly generate new calls for fire/EMS services in the district where the facility is located and other nearby districts. The new calls for service would be anticipated to be distributed throughout several districts with no significant impacts to any single district.	It is estimated that the proposed prison reception center could generate approximately 1 new call for fire suppression services to Mason County Fire District 16 and 45 calls for emergency medical services/transport services per year to Mason County Medic One (a private medical transport service). According to Mason County Fire District 16, no significant impacts to fire or EMS services would be anticipated. Potential impacts to fire/EMS services associated with new employment population increases would be similar to the impacts described for the Bremerton Site.	It is estimated that the proposed prison reception center could generate approximately 1 new call for fire suppression services and 45 calls for emergency medical services/transport services per year to the Thurston County Regional Fire Authority. According to the Thurston County Regional Fire Authority, no significant impacts to fire or EMS services would be anticipated. Potential impacts to fire/EMS services associated with new employment population increases would be similar to the impacts described for the Bremerton Site..

Element	Potential Impacts	Bremerton Site	Mason County Site	Thurston County Site
	Schools	No existing school facilities would be displaced and no new students would be directly generated from the proposed prison reception center facility; therefore, no direct impacts to the South Kitsap School District would be anticipated. Population increases associated with new employment generated by the proposed prison reception center could indirectly generate new students within the school district where the facility is located and other nearby districts. The new students would be anticipated to be distributed throughout several districts with no significant impacts to any single district.	No existing school facilities would be displaced and no new students would be directly generated from the proposed prison reception center facility; therefore, no direct impacts to the Shelton School District would be anticipated. Potential impacts to school districts associated with new employment population increases would be similar to the impacts described for the Bremerton Site.	No existing school facilities would be displaced and no new students would be directly generated from the proposed prison reception center facility; therefore, no direct impacts to the Rochester School District would be anticipated. Potential impacts to school districts associated with new employment population increases would be similar to the impacts described for the Bremerton Site.
	Parks	No existing parks or open space facilities would be displaced and no parks or open space facilities would be provided the proposed prison reception center facility; therefore, no direct impacts to parks and open space resources would be anticipated. Population increases associated with new employment generated by the proposed prison reception center could indirectly increase use of parks and open space resources in the area where the facility is located and other nearby communities. Increases in the use of parks and open space resources would be distributed throughout several communities with no significant impacts to any single district.	Potential impacts to parks and open spaces resources would be similar to the Bremerton Site.	Potential impacts to parks and open spaces resources would be similar to the Bremerton Site.
UTILITIES				
Construction and Operations	*Water*	The City of Bremerton water system has sufficient capacity to accommodate the anticipated 179,200 gallons per day demand of the proposed prison reception center. To provide service to the site, the following improvements would be required to be made by DOC: • Construct approximately 3.2 miles of 12-inch ductile iron water main along SR 3 and Lake Flora Road. • Construct a new booster pump and a 0.5 million gallon reservoir.	The City of Shelton water system has sufficient capacity to accommodate the anticipated 179,200 gallons per day demand of the proposed prison reception center. To provide service to the site, the following improvements would be required: • Construct approximately 1.2 miles of 12-inch ductile iron water main along West Dayton Airport Road/SR 102 from the Washington State Patrol to the site. • Construct a 2-mile water main extension to extend water service to the Washington State Patrol, if other funding for this portion falls through.	The Thurston County water system has sufficient capacity to accommodate the anticipated 179,200 gallons per day demand of the proposed prison reception center. To provide service to the site, the following improvements would be required: • Construct approximately 1,000 feet of new 12-inch water main from the treatment plant to the site. • Construct 5,600 feet of new 8-inch water main in Old Highway 9, connecting at the intersection with Old Highway 99. The status of the two existing onsite wells and associated water rights would be determined during the construction phase based upon discussions with Thurston County.

Element	Potential Impacts	Bremerton Site	Mason County Site	Thurston County Site
	Sewer	The existing City of Bremerton sanitary sewer treatment lagoons do not have sufficient capacity to accommodate the peak flow requirements of 128 gallons per minute and daily flow of 92,160 gallons. To provide service to the site, the following improvements would be required to be constructed by DOC: • Construct two new pump stations. • Construct approximately 1.3 miles of 8-inch for main along SR 3 • Construct 0.85 mile of 8-inch gravity main on Port of Bremerton property • Construct a membrane bioreactor (MBR) treatment facility of Port of Bremerton Property near the Olympic Industrial Park • Construct one mile of 8-inch reclaimed water force main on Port of Bremerton property.	The existing City of Shelton sanitary sewer treatment plant has sufficient capacity to accommodate the peak flow requirements of 128 gallons per minute and daily flow of 92,160 gallons. To provide service to the site, the following improvements would be required to be constructed by DOC: • An 8-inch gravity main would need to be constructed onsite. • A pump station to connect to the existing force main located within West Dayton Road/SR 102 would need to be constructed.	The existing Thurston County sanitary sewer treatment plant does not have sufficient capacity to accommodate the peak flow requirements of 128 gallons per minute and daily flow of 92,160 gallons. To provide service to the site, the following improvements would be constructed by Thurston County: • The Thurston County treatment plant would need to be expanded. A new oxidation ditch to accommodate additional loading would need to be constructed.
	Stormwater	Stormwater flow control would be provided by open ponds that would temporarily store stormwater or an underground detention pipe (to mitigate potential wildlife attractant hazards for the adjacent airport) while releasing to the subsurface soils. Water quality would be provided with the use of wetponds, biofiltration, media filter drains or other methods, as accepted by the City of Bremerton.	Stormwater flow control would be provided by open ponds, swales and possibly infiltration pipes that would temporarily store stormwater from the site while releasing to the subsurface soils. If ground water elevations are determined to be at an elevation that will inhibit infiltration, detention pond(s) or tanks may be necessary. Water quality would be provided with the use of wetponds, biofiltration, media filter drains or other methods, as accepted by Mason County.	Stormwater flow control would be provided by open ponds, swales and possibly infiltration pipes that would temporarily store stormwater from the site while releasing to the subsurface soils. Water quality would be provided with the use of wetponds, biofiltration, media filter drains or other methods, as accepted by Thurston County.
	Natural Gas	Cascade Natural Gas would serve the Bremerton Site from an interruptible supply. At times when gas supplies are curtailed, facility heating would switch to propane as a back-up fuel from on-site storage tanks.	Cascade Natural Gas would serve the Mason County Site from an interruptible supply. At times when gas supplies are curtailed, facility heating would switch to propane as a back-up fuel from on-site storage tanks.	Puget Sound Energy would serve the Thurston County Site from an interruptible supply. At times when gas supplies are curtailed, facility heating would switch to diesel as a back-up fuel from on-site storage tanks. An upgrade of approximately 5,900 lineal feet of the offsite gas main from 4 in. to 8 in. would be required. DOC would be responsible for funding this upgrade.
	Electrical	Puget Sound Energy has sufficient capacity to accommodate the anticipated 12.5kV primary metering/utility demarcation point and calculated load of 7MW and average running load of 3.5 MW demand for the proposed prison reception center. To provide service to the site, the following improvements would be required by PSE: • Rebuild the existing SIN-25 medium voltage utility distribution feeder along SR 3 to create a double circuit configuration for a distance of approximately 3.25 miles. • Upgrade the existing Sinclair Inlet substation to support the estimate load. DOC would be responsible for funding these improvements.	Mason County PUD No. 3 has sufficient capacity to accommodate the anticipated 12.5kV primary metering/utility demarcation point and calculated load of 7MW and average running load of 3.5 MW demand for the proposed prison reception center. To provide service to the site, the following improvements would be required by Mason County PUD No 3: • Construct a new distribution substation of PUD property near the intersection of Dayton/Airport Road and Shelton/Matlock Road. • Install a new dedicated feeder from the new distribution substation to the site. DOC would be responsible for funding these improvements.	Puget Sound Energy has sufficient capacity to accommodate the anticipated 12.5kV primary metering/utility demarcation point and calculated load of 7MW and average running load of 3.5 MW demand for the proposed prison reception center. To provide service to the site, the following improvements would be required by Puget Sound Energy: • Minor utility metering revisions. DOC would be responsible for funding these improvements.

Element	Potential Impacts	Bremerton Site	Mason County Site	Thurston County Site
	Telecommunications	Kitsap Public Utility District (KPUD)/NoaNet has sufficient capacity to accommodate the anticipated telecommunication needs of the proposed prison reception center. To provide service to the site, the following improvements would be required by KPUD/NoaNet: • Extend a new 12-strand single mode fiber optic cable and 200 pair copper cabling from the KPUD right-of-way to the telecommunications demarcation point at the site. DOC would be responsible for funding these improvements.	Mason County PUD No 3 has sufficient capacity to accommodate the anticipated telecommunication needs of the proposed prison reception center. To provide service to the site, the following improvements would be required by PUD 3: • Extend a new 12-strand single mode fiber optic cable and 200 pair copper cabling from the PUD right-of-way to the telecommunications demarcation point at the site. DOC would be responsible for funding these improvements.	Qwest has sufficient capacity to accommodate the anticipated telecommunication needs of the proposed prison reception center. To provide service to the site, the following improvements would be required by Qwest: • Extend a new 12-strand single mode fiber optic cable and 200 pair copper cabling from the Qwest right-of-way to the telecommunications demarcation point at the site. DOC would be responsible for funding these improvements.
ECONOMICS				
State of Washington	*Construction Costs*	The estimated construction costs associated with development of the proposed prison reception center at the Bremerton Site would be $157,900,000.	The estimated construction costs associated with development of the proposed prison reception center at the Mason County Site would be $139,500,000.	The estimated construction costs associated with development of the proposed prison reception center at the Thurston County Site would be $130,100,000.
	Anticipated Land Acquisition Costs	The estimated cost of land acquisition for the Bremerton Site would be $2,613,600.	The estimated cost of land acquisition for the Mason County Site would be $400,000.	The estimated cost of land acquisition for the Thurston County Site would be $1. (Because the Thurston County Site is already owned by the State of Washington, it can be transferred to the Department of Corrections for $1.)
	Operating Costs	The annual operating costs for the proposed prison reception center at the Bremerton Site would be $39,277,000.	The annual operating costs for the proposed prison reception center at the Mason County Site would be $39,277,000.	The annual operating costs for the proposed prison reception center at the Thurston County Site would be $39,277,000.
	Transportation Costs	The annual anticipated prison reception center transportation costs associated with inmate transports to/from the Bremerton Site would be $803,920.	The annual anticipated prison reception center transportation costs associated with inmate transports to/from the Mason County Site would be $837,720.	The annual anticipated prison reception center transportation costs associated with inmate transports to/from the Thurston County Site would be $820,040.
Host Jurisdictions	*One-time Service Costs to Host Jurisdictions*	There are no one-time service costs estimated for development of the proposed prison reception center at the Bremerton Site.	There are no one-time service costs estimated for development of the proposed prison reception center at the Mason County Site.	There are no one-time service costs estimated for development of the proposed prison reception center at the Thurston County Site.
	One-time Tax Revenues	The one-time tax revenues to the City of Bremerton from sales tax, B&O tax and REET associated with development of the proposed prison reception center at this site would be $4,275,100.	The one-time tax revenues to Mason County from sales tax, B&O tax and REET associated with development of the proposed prison reception center at this site would be $2,152,000.	The one-time tax revenues to the Thurston County from sales tax, B&O tax and REET associated with development of the proposed prison reception center at this site would be $3,438,000.
	Annual Service Costs	Public service providers (police departments, fire/EMS departments, school districts and parks departments) would not be anticipated to experience additional costs associated with the proposed prison reception center.	Potential impacts to annual service costs would be similar to the Bremerton Site.	Potential impacts to annual service costs would be similar to the Bremerton Site.
	Annual Tax Revenues	The annual tax revenues estimated to be received by the City of Bremerton from the proposed prison reception center would be $162,700.	The annual tax revenues estimated to be received by Mason County from the proposed prison reception center would be $45,500.	The annual tax revenues estimated to be received by Thurston County from the proposed prison reception center would be $38,400.

1.6 Environmental Impact Comparison

The following table compares the relative magnitude of impacts identified under each element of the environment for the three alternative sites analyzed in this Draft EIS. For each element of the environment, the relative magnitude of the environmental impacts identified in this Draft EIS is indicated in terms of "Potential for Significant Impact", "Moderate Potential for Impact" and "Minimal Potential for Impact".

	Bremerton	Mason County	Thurston County
Earth	○	○	○
Air Quality	○	○	○
Plants/Animals/Surface Water	● 1,2	◒ 2	○
Energy	○	○	○
Environmental Health	○	○	◒ 3
Noise	○	○	○
Land Use	◒ 4	○	○
Relationship to Plans & Policies	◒ 4	○	○
Employment/Population/Housing	○	○	○
Aesthetics	○	○	○
Cultural Resources	○	○	◒ 5
Historic Resources	○	○	○
Transportation	○	○	○
Public Services	○	○	○
Utilities	◒ 6	◒ 6	◒ 6
Economics	○	○	○

● Potential for Significant Impact
◒ Moderate Potential for Impact
○ Minimal Potential for Impact

1 Filling of Wetlands
2 Clearing of Habitat (trees)
3 Demolition of buildings potentially containing asbestos
4 Adjacent to airport approach zone
5 Adjacent to archeological site (on lower portion of property)
6 Potentially substantial utility infrastructure costs

1.7 Mitigation Measures

Earth

Mitigation measures to address potential earth-related impacts are listed below.

All Sites

- Site-specific subsurface explorations, geotechnical evaluation and development of geotechnical design recommendations for specific elements of the proposed development would be completed prior to and during design of the facility at any of the three site alternatives. These activities should address the specific requirements in the relevant sections of code of the local jurisdiction.

- Cuts and fills of varying heights will be required for development on each of the sites. Slopes created by cuts that range up to 20 feet in height can be satisfactorily made at inclinations of 2H:1V (horizontal to vertical) or flatter. Cuts that cannot be sloped back could be supported with engineered retaining walls such as conventional gravity or retaining walls, mechanically stabilized earth (MSE) walls, soldier pile and tieback walls, or soil nail walls.

- Structural fill placed to support the building and paved areas would be properly compacted. Permanent fill slopes would generally be inclined at 2H:1V or flatter. Retaining walls could be used to limit the lateral extent of fills. Potential retaining wall options for fill applications include cantilever walls and MSE walls.

- Proper site preparation techniques would be used including: removal of surficial organic materials (vegetation, forest duff, topsoil and/or shallow peat deposits and large roots) from beneath proposed structure and pavement locations. Existing fill soils encountered during site grading would be removed and replaced if found to be in a loose or uncompacted condition.

- Appropriate support systems would be designed and constructed so that settlements would be within acceptable limits. Foundation systems would be designed in accordance with applicable IBC and local agency codes.

- Measures to address construction impacts in steeply sloping areas will include the following:

    - limiting soil disturbance and removal of vegetation
    - proper design and construction of cut and fill slopes
    - use of retaining structures where necessary
    - implementing features that control or avoid surface water or groundwater flow
    - slope revegetation
    - slope stability evaluations where appropriate, including identification of an adequate buffer distance.

- For construction, a Temporary Erosion and Sediment Control Plan (TESC) and a Stormwater Pollution Prevention Plan (SWPPP) would be developed and implemented

which would provide for the interception and treatment of potential silt-laden runoff that could occur during clearing, grading, construction of structures, and site stabilization. The TESC and SWPPP plans would specify measures to prevent silt-laden runoff from leaving the construction site. The plans would describe specific requirements for soil- and ground-cover protection measures, conveyance systems, and sedimentation facilities and water quality monitoring. The TESC and SWPPP plans would be prepared in accordance with the respective jurisdiction's and the Washington State Department of Ecology requirements, and could include the following:

- Limit clearing and grading to construction, laydown and staging areas to minimize the area of exposed soil.
- Complete site preparation, excavations and fill placement during the drier summer and early fall months to the extent practical.
- Route surface water through temporary drainage channels around and away from disturbed soils or exposed slopes.
- Cover exposed soil stockpiles and exposed slopes with plastic sheeting, as appropriate.
- Use straw mulch and erosion control matting to stabilize graded areas and reduce rain and runoff impacts to slopes.
- Use mobile sedimentation tank trucks to collect and contain turbid water, if needed. Alternatively, polymers could be used to reduce water turbidity.
- Construct temporary sedimentation ponds, check dams and filter (silt) fences to remove as much sediment as possible prior to returning runoff to natural drainages.
- Intercept and drain water from any surface seeps where they are encountered.
- During periods of wet weather, stabilize disturbed areas using mulch and/or hydroseeding within an appropriate time interval.
- Construct stabilized construction entrances and tire cleaning areas.
- Designate procedures to be used for disposal of wood wastes and soil spoils materials that cannot be reused onsite.
- Conduct routine monitoring of the construction site to see that the erosion and sediment control features are operating as intended and to repair or augment the features, as appropriate.
- Allow for temporary cessation of construction activities under certain limited circumstances, if weather conditions warrant.

- Following construction, fill embankment slopes and cut slopes would be promptly vegetated (such as with hydroseeding) to protect against erosion during project operation.

- All on-site structures would be designed per the seismic provisions of the applicable building codes (such as the International Building Code) at the time of design.

- Shallow slides induced by strong ground shaking could be mitigated by reducing slope height and providing adequate drainage and vegetation on and near the slope.

- Impacts associated with earthwork using the onsite moisture sensitive soils can be mitigated by limiting earthwork activities to the dry season, typically considered to extend from June through October in the Puget Sound region. Even during the normally dry

season, periods of wet weather may occur, and it may be necessary to limit earthwork activities during such occurrences. Also, it may be necessary to moisture condition (dry) soils if they become too wet during wet weather or if their natural moisture content is significantly above the optimum for compaction.

- If earthwork occurs during the wet seasons of the year, the associated activities may need to be limited to windows of dry weather, or free-draining fill soil may need to be imported to the site.

- Surficial materials removed during clearing and stripping could be reused in landscaped areas.

- Temporary shoring could be used to support cuts for utilities and other underground features where open cuts would not be feasible. The shoring or open cuts should be designed and constructed in accordance with Washington State regulations.

- Temporary dewatering may be needed during construction of subsurface features to control and limit subsidence to nearby areas.

- LID stormwater features could be incorporated into the design of the new facility to mitigate the potential reduction in the quantity of shallow groundwater flow. Such features could include infiltration of stormwater generated from developed portions of the site via the use of infiltration ponds, pervious pavements, bioretention swales, rain gardens and other features. Infiltration facilities would be placed close to existing wetlands and drainages where possible.

- To address the potential diversion of shallow groundwater along underground utilities, impermeable seepage barriers could be installed at intervals within trench backfill.

- Potential groundwater quality impacts could be addressed by the implementation of construction BMPs, TESC and SWPPP plans, spill prevention and control plans, construction materials and waste management plans and monitoring of stormwater discharged to the groundwater systems. These measures would conform to Ecology and the respective jurisdiction's requirements, specifically as they relate to aquifer protection.

- To avoid groundwater quality impacts, above-ground fuel tanks for the onsite generator or onsite fueling would include double wall construction and leak detection and spill prevention systems to reduce the potential for leaks or spills.

Bremerton Site

- Slopes created by cuts that range up to 20 feet in height could be made at inclinations of 2H:1V (horizontal to vertical) or flatter.

- Cuts that cannot be sloped back could be supported with engineered retaining walls such as conventional gravity retaining walls, MSE walls, soldier pile and tieback walls, or soil nail walls.

- Construction could be avoided in areas underlain by peat, or peat should be partially or completely removed.

- Structures should be located outside of soft soil areas such as peat areas, or soft soils should be removed.

Mason County Site

- Slopes created by cuts that range up to 20 feet in height could be made at inclinations of 2H:1V (horizontal to vertical) or flatter.

- Cuts that cannot be sloped back could be supported with engineered retaining walls such as conventional gravity retaining walls, mechanically stabilized earth (MSE) walls, soldier pile and tieback walls, or soil nail walls.

Thurston County Site

- Proper site preparation techniques could be used to mitigate potential settlement issues including removal of building demolition debris from beneath proposed structure and pavement locations.

Air Quality

Mitigation measures to address potential air quality impacts are listed below.

Construction

Possible mitigation for reducing the potential for air quality impacts during construction includes measures for reducing both exhaust emissions and fugitive dust. Best management practices should be employed to minimize potential impacts. This would be particularly important with the Thurston County Site where residences would be close to construction activities. The *Washington Associated General Contractors brochure Guide to Handling Fugitive Dust from Construction Projects* suggests a number of methods for controlling dust and reducing the potential exposure of people to emissions from diesel equipment. A list of some of possible mitigation measures that could be implemented to reduce potential air quality impacts from construction activities follows.

- Use only equipment and trucks that are maintained in optimal operational condition.

- Restrict construction truck idling (e.g., limit idling to a maximum of 5 minutes).

- Use carpooling or other trip-reduction strategies for construction workers.

- Stage construction to minimize overall transportation system congestion and delays to reduce regional emissions of pollutants during construction.

- Implement construction curbs on hot days when the region is at risk for exceeding the ozone standard, and work at night instead.

- Locate construction equipment as far away as possible from sensitive receptors such as fresh air intakes to buildings, air conditioners and sensitive populations.

- Locate construction staging zones where diesel emissions will not be noticeable to the public or be near sensitive populations such as the elderly and the young.

- Spray exposed soil with water or other suppressant to reduce emissions of PM_{10} and deposition of particulate matter.

- Cover all trucks transporting materials, wetting materials in trucks, or providing adequate freeboard (space from the top of the material to the top of the truck bed), to reduce PM_{10} emissions and deposition during transport.

- Provide wheel washers to remove particulate matter that would otherwise be carried off site by vehicles to decrease deposition of particulate matter on area roadways.

- Cover dirt, gravel, and debris piles as needed to reduce dust and wind-blown debris.

- Route and schedule construction trucks to reduce delays to traffic during peak travel times to reduce air quality impacts caused by a reduction in traffic speeds.

- Remove particulate matter deposited on paved, public roads, sidewalks and bicycle and pedestrian paths to reduce mud and dust; sweep and wash streets frequently to reduce emissions.

Operation

No operational air quality impacts were identified. Therefore, no additional mitigation is proposed.

Plants, Animals, Habitat and Surface Water Features

All Sites

- Clearing, grading, demolition and significant tree removal would comply with applicable regulations of each jurisdiction.

- A temporary erosion control plan, stormwater pollution prevention plan, as well as best management practices would be implemented during construction to control erosion and sedimentation impacts on water resources, per applicable requirements, for both onsite and off-site (utility line extensions) construction projects.

- Permanent water quality treatment and stormwater management systems are proposed and would be designed to maintain hydrologic support to wetlands and streams near the sites.

- The site plans of the proposed prison reception center would be designed to avoid direct impacts to wetlands, streams and their buffers, to the extent feasible.

- Landscaping would be installed and would include non-native plantings as well as native plantings that would provide wildlife habitat.

- New open space and landscape area would be maintained by the Department of Corrections to ensure that these areas do not become colonized by invasive plant species.

- Lighting would include cut-off luminaries to reduce light spillage to wetlands and streams located on and near the sites.

- Although not required by codes and regulations to minimize impacts to migratory birds, trees to be removed could be cut down outside of the active nesting season. Tree cutting is anticipated to occur in the late summer, fall or winter.

Bremerton Site

- Construction of the facility would unavoidably impact 45,289 sq. ft. of Category III wetland including Wetlands J, K, L, M, N, O, P, S, and R. Mitigation required for unavoidable impacts to the wetlands on the Bremerton Site would require acquisition of a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers, and Clean Water Act Section 401 permit from the Washington State Department of Ecology, and City of Bremerton permits. Up to 90,578 sq. ft of new wetland area would be provided on the site to compensate for impacted existing wetlands.

Mason County Site

- The 1.9 acre wetland located on the site would be protected with a Mason County code-required 200-foot buffer with signs posted at the perimeter of the buffer as required by Mason County Code. A total of 12.2 acres of wetland and buffer would be protected.

Thurston County Site

- As required by Thurston County, the four Oregon White Oak trees located on the site would be protected during and after construction of the proposed project.

- If the existing sewer pump station and associated vault located in the Wetland B reduced buffer area is required to be modified to support development of the prison reception center at the Thurston County Site; impacts to the wetland buffer would be mitigated in accordance with the Thurston County Code.

Energy (Greenhouse Gas Emissions)

All Sites

A variety of mitigation measures are available to reduce energy use, increase sustainable building design and reduce GHG emissions. It is likely that numerous features would be incorporated into the project design to, among other things, conserve energy and reduce GHG emissions. Specific mitigation measures would include the following:

- The *Westside Prison Reception Center* development would comply with applicable local and state energy code requirements.

- The proposed prison reception center facility would obtain a LEED Silver rating, at minimum.

- Established DOC sustainability goals would be a consideration in the facility design and operations.

Environmental Health/Environmental Site Hazards

Mitigation measures to address potential environmental health related impacts are listed below.

All Sites

- A Pollution Prevention Plan (PPP) containing procedures for preventing and responding to accidental spills would be prepared prior to construction.

- If any unanticipated underground storage tanks, groundwater wells, buried hazardous materials, visibly impacted soil areas and/or septic tanks or other hazardous materials are encountered onsite during construction, they would be removed, mitigated or decommissioned in accordance with applicable federal, state and local requirements.

- Site development and construction would adhere to applicable regulations regarding demolition activity and fugitive dust emissions, including: wetting of exposed soils, covering or wetting of transported earth materials, washing of truck tires and undercarriages prior to travel on public streets, and prompt clean up of any materials tracked or spilled onto public streets.

- Any medical waste material produced by the proposed *Westside Prison Reception Center* facility would be stored and disposed of in accordance with all applicable local and state waste management regulations.

- The proposed above-ground fuel tanks associated with the onsite generator or onsite fueling would include double wall construction and leak detection and spill prevention systems to reduce the potential for leaks or spills.

Bremerton Site

- All vehicle maintenance facilities would be constructed and operated in accordance with applicable regulations.

Thurston County Site

- Prior to development of the proposed prison reception center, pre-demolition surveys and applicable asbestos and/or lead abatement activities would be completed on certain existing onsite buildings and structures associated with the existing Maple Lane Juvenile Facility, as required Olympic Region Clean Air Agency and other local, state and federal air quality or worker safety regulations.

- Decommissioning of the existing fuel system and tank would be completed in accordance with all applicable regulations.

- All vehicle maintenance facilities would be constructed and operated in accordance with applicable regulations.

Noise

All Sites

- Construction at any of the sites would be subject to timing restrictions to between 7 AM and 10 PM.

- In order to reduce the generation of on-site construction noise and the transmission of such noise to off-site locations, some or all of the following construction noise mitigation measures could be implemented:

  - Require contractors to maintain all equipment (especially mufflers) in good working order.

  - Use engine enclosures on non-portable equipment when the engine is the dominant source of noise.

  - Locate stationary equipment as far from receiving properties as possible. Where this is not feasible, place portable noise barriers around equipment, with the opening directed away from sensitive receiving locations.

  - To the extent feasible, substitute hydraulic or electric models for impact tools such as jack hammers, rock drills and pavement breakers

  - Where feasible, lift rather than drag materials to minimize material handling noise.

  - Explore the feasibility of using broad-band and ambient-sensing vehicle back up alarms, which are typically less noticeable than traditional pure-tone alarms.

Thurston County Site

- Noise barriers could be built around the rooftop HVAC units to reduce the level of rooftop mechanical noise to acceptable levels (i.e., levels that would comply with the nighttime noise limits).

Land Use

All Sites

- Security features would be incorporated into the design and operation of the prison reception center to reduce the potential for security-related impacts (see **Chapter 2** for details).

- The building concepts associated with each site alternative generally indicate that building height and mass of the prison reception center facility would be largely compatible with that of structures proximate to each site (see Section 3.10, **Aesthetics**, for details).

- Security fencing would be provided around the staff parking area and ground-level housing units.

- Trees would remain intact and landscape screening would be provided along certain portions of the sites to reduce the potential for impacts to adjacent land uses (see Section 3.10, **Aesthetics**, for details on the proposed landscape plans).

Bremerton Site

- The Department of Corrections would coordinate building location, building design (i.e. heights, and construction activities with the Port of Bremerton to ensure that development activities would not impact airport safety or operations.

Relationship to Plans, Policies and Regulations

Bremerton Site

- The project would comply with the Industrial zone's 50-foot height limit, as well as all applicable minimum setbacks, as established in BMC 20.94.

- Parking areas on the site would be designed to comply with currently adopted standards for parking area lighting, screening, landscaping, and signage, as established in BMC 20.48.080.

- Sufficient parking would be provided to comply with the standards established in BMC 20.48.080 (Nonresidential Parking Development Standards) or shall work with the City of Bremerton to obtain a parking requirement reduction, pursuant to BMC 20.48.120.

- To the extent possible, site area could be preserved as natural vegetation and vegetation could be maintained along property lines to provide screening from adjoining properties.

- Project lighting would be designed to direct downward to the greatest extent feasible to reduce light and glare effects on neighboring properties and aircraft using the Bremerton National Airport.

- If the communication antennae pose the potential for an airspace obstruction, a Notice of Construction or Alteration submittal would be required to FAA for a Part 77 aeronautical review would be necessary. Such notice would relate to the construction crane associated with erection of the antennae, the proposed antennae once operational, and the aeronautical chart revisions associated with the antennae.

- To minimize or avoid hazardous wildlife attractants near the airport, underground stormwater detention facilities could be utilized or other design modifications (to open stormwater ponds) could be incorporated. The WSDOT Airport Stormwater Design Manual to implement stormwater best management practices within the airport influence area would be utilized.

- Mitigation for the wetland impacts would meet federal, state and local requirements.

Mason County Site

- Unless waived by the Hearing Examiner, the DOC would acquire the acreage necessary to meet the Floor Area Ratio requirements in MCC 17.04.244.

- The design of the proposed reception center would incorporate all necessary property line setbacks and landscaping to protect the rural character of the surrounding area, as required by MCC 17.04 and subject to conditions imposed pursuant to approval of a Special Use Permit.

- The DOC would, at the time of property acquisition, ensure that a notification is recorded on the subdivision plat stating that the project site is located within 500 feet of land designated by Mason County for long-term commercial forestry and that users of the project site may be subject to temporary nuisances associated with the practice of forestry, pursuant to MCC 17.01.060.E.2.

- The proposed reception center building and any other human-inhabited structures would be located outside the Airport Overlay Zone in order to comply with the prohibition on Special Function Land Uses (MCC 17.60.040).

- No structures or pavement would be constructed within 200 feet of any documented wetlands on the project site.

Thurston County Site

- A 25-foot landscape buffer would be provided/retained adjacent to Old Highway 9 SW as required in Thurston County Code (TCC) 20.54.17.5.diiA. Vehicle sight lines at the access points onto Old Highway would be provided/maintained.

- The main reception center building would be located east of the main access road to increase its distance from nearby schools.

- Existing native vegetation located in the northwest corner of the property would be preserved to maintain a barrier from nearby schools.

- The existing 12-foot tall fence along the perimeter of the property would be maintained. This fence exceeds the code requirement for an 8-foot tall fence.

Employment, Population and Housing

No significant impacts have been identified and no mitigation measures are proposed.

Aesthetics, Light and Glare

Aesthetics

No significant adverse aesthetic or viewshed-related impacts are anticipated for the site alternatives. The following measures are proposed to lessen visual impacts of the facility:

- Building facades would be modulated and various materials would be utilized on building facades to provide visual interest.

- Where possible and appropriate, existing trees would be retained to screen and soften views of the proposed facility.

New landscaping (trees and ornamental shrubs) would be provided at each site, to enhance the aesthetic character of the facility and provide screening from adjacent uses.

Light and Glare

The following mitigation measures could be implemented for light and glare impacts associated with development of the proposed Westside Prison Reception Center at any of the site alternatives:

- Where possible, existing trees would be retained and new trees provided in order to screen and soften new light and glare-related impacts from the proposed facility.

- Reflectivity of glazing materials and the use of shading devices as part of the building façade design would be considered in order to minimize the potential glare-related impacts to surrounding uses.

- Exterior building lighting and pedestrian lighting would be specified and located to ensure that light is directed downward and away from adjacent off-site properties to minimize the light-spillage related impacts to nearby uses.

Cultural Resources

All Sites

- To avoid adverse impacts to cultural resources, additional archaeological survey, including subsurface testing using archaeological methods (i.e., shovel and/or hand

auger testing) should be carried out in conjunction with the project design footprint to determine if archaeological resources are present.

- If at any time during construction archaeological resources are observed on the site, they would be evaluated and adverse impacts from the project would be assessed. If the resource is determined to be a historic property, impacts would be avoided or minimized through measures determined in consultation with DAHP. If impacts cannot be avoided or minimized, data recovery may be a suitable form of mitigation.

Bremerton Site

- If the Bremerton Site were chosen as the site for the prison reception center, the DOC would continue to consult with the Suquamish Tribe regarding the potential presence of cultural resources of significance to the tribe within the Bremerton Site, as well as the potential for construction activities and noise to interfere with traditional use of nearby locations where cultural practices could require privacy and quiet.

Mason County Site

- If the Mason County Site were chosen as the site for the prison reception center, the DOC would continue to consult with the Chehalis Tribe regarding the potential presence of cultural resources of significance to the tribe within and in the vicinity of the Mason County Site.

Thurston County Site

- If the Thurston County Site were chosen as the site for the prison reception center, the DOC would continue to consult with the Chehalis Tribe regarding the potential presence of cultural resources of significance to the tribe within and in the vicinity of the Thurston County Site.

Historic Resources

No mitigation would be required at the Bremerton or Mason County Sites since no historic resources were identified on or immediately adjacent to these sites.

Thurston County Site

- **Potential Structural Instability/Undermining:** Care should be taken in order to avoid structural damage to the nearby Administration Building that could occur due to construction-related vibrations and/or earthwork. All excavation, earthwork, pile driving, etc. should be designed and monitored in order to minimize and/or immediately address any such impacts to nearby or adjacent historic properties. Monitoring should include crack monitors placed on the Administration Building, periodic observation, and photography to document it structural integrity and determine whether there was resulting damage of interior or exterior finishes, or exterior masonry and/or framing. If such damage occurs as a result of the project, damage should be mitigated through repairs to the building.

- **Temporary Dirt/Unintended Damage:** Care should be taken in order to avoid or limit the introduction of atmospheric elements that could alter and/or potentially damage historic building fabric or architectural features of the nearby historic resource. All construction activity should be monitored in order to prevent and address any such impacts to the historic property. Consider limiting access near historic properties of construction vehicles carrying excavation materials. Dust control measures would be implemented (see **Section 3.2, Air Quality** of the DEIS for details).

- **Administration Building and Associated Features, Context/Character of Surroundings:** In order to preserve the historic formal approach sequence to the Administration Building, the proposed new surface parking adjacent to the entry drive could be held back from the edge of the drive, at least as far as the existing fence line, to provide a visual buffer. The entry to this eastern lot should be designed to maintain the symmetrical line of existing trees along the lane and avoid removal of existing trees. The inner ring-road in front of the Administration Building should be retained beyond the east and west ends of the building to the extent feasible to maintain the historic context of the tree-lined circulation pathways.

  If this site is selected, a cultural landscape report should be prepared to document the remaining historic landscape features associated with the Administration Building, consistent with the recommendations in *Preservation Brief 36: Protecting Cultural Landscapes*. A Cultural Landscape Report (CLR) documents the history, significance and treatment of a cultural landscape and evaluates its history and integrity, including any changes to its geographical context, features, materials, and use. CLRs are often prepared when a change is proposed, when they serve as a useful planning tool.

  Overhead utility wires should not be introduced to the campus. If new underground service is introduced, care should be taken to avoid root systems of existing trees. Within the historic site of the Administration Building, ground surface should be restored to existing conditions following installation of any new underground utilities.

- **Disuse of Administration Building**: As there is no proposed adaptive use for the historic Administration Building within the new Westside prison reception center program, it is critical that the historic building be properly preserved in the interim. A preservation plan, developed by a qualified project team, should include a cyclical maintenance program to be adopted by the DOC. The plan should include recommendations for ongoing and future maintenance of the historic landscape features, which consist of entry pylons, tree-lined roads, and historic streetlights. In the event that the Administration Building would no longer have appropriate heat, ventilation, and cyclical maintenance, it should be mothballed according to the recommendations laid out in *Preservation Brief 31: Mothballing Historic Buildings*.

  In the current proposal, no programmatic use has been identified for the Administration Building. In the future, consideration should be given to functions that may work within the building (such as staff offices and training, etc.).

Transportation

All Sites

To mitigate the short-term construction impacts, the project's contractor would prepare a Construction Transportation Management Plan per local jurisdiction requirements. This plan would document proposed construction haul routes, where contractors would park during various stages of construction, and any necessary elements to mitigate impacts on access and non-motorized transportation in the site area.

Bremerton Site

The following mitigation has been identified for the Bremerton site alternative.

- **Left-Turn Storage for Site Access:** Left-turn storage is recommended for the site access driveway. The left-turn pocket should be 12-feet wide and have a minimum of 100 feet of storage (with a 50-foot buffer before starting the taper) and a 300-foot taper. Southeast of the site access, widening would also be required to transition back to two lanes. In total, this could require widening SW Lake Flora Road for about 750 feet (450 feet to the northwest and 300 feet to the southeast).

- **Access Location for Sight Distance:** The access driveway should be located so that it can provide a minimum of 700 feet of sight distance in both directions.

- **Frontage Improvements:** City of Bremerton staff has indicated the *Bremerton Municipal Code (BMC) Title 11* would require full street improvements and dedication of public right-of-way along the project site frontage. Frontage improvements are typically required along the entire street frontage of the parcel to be developed. The length of the actual frontage improvements for this alternative site will depend on the size and location of the parcel selected for development. The code required frontage improvements are detailed in the "Functional Roadway Classification" table that is part of the *Bremerton Road Standards*.[2] For SW Lake Flora Road—a minor arterial—half-street improvements could consist of curb, gutter, and sidewalk, a 5-foot bike lane, a 6-foot planter strip, and a 12-foot travel lane. City staff has also noted that a subarea plan currently being developed (for the SKIA) will likely contain different standards for frontage requirements, allowing more flexibility for development. The new standards will have an emphasis on Low Impact Development (LID), and will be available for review in fall 2011. City staff indicated that some form of pedestrian walkway will likely be required with either the existing standards (sidewalk) or the updated standards. With the required frontage improvements, non-motorized access in the site vicinity would be improved with the project.

- **Traffic Impact Fees:** No traffic mitigation fees would be required.

Mason County Site

The following mitigation has been identified for the Mason County site alternative.

[2] City of Bremerton Road Standards, Functional Roadway Classification, 10/22/2002.

- **Left-Turn Storage for Site Access:** Left-turn storage is recommended for the site access driveway. The left-turn storage lane should be 12-feet wide and have a minimum of 100 feet of storage (with a 50-foot buffer before starting the taper) and a 270-foot taper. West of the site access, widening would also be required to transition back to two lanes to the west. In total, this could require widening SR 102 for about 720 feet (420 feet to the east and 300 feet to the west).

- **Access Location for Sight Distance:** The access driveway should be located so that it can provide a minimum of 630 feet of sight distance in both directions.

- **Frontage Improvements:** WSDOT staff has indicated that project site frontage along SR 102 should be widened to provide the minimum shoulder width. Based on *WSDOT Design Manual*, a shoulder width of three feet would be required.

- **Traffic Impact Fees:** No traffic mitigation fees would be required.

Thurston County Site

The following mitigation has been identified for the Thurston County site alternative.

- **Frontage Improvements:** Thurston County staff has indicated that, in consideration of the DOC granting space on the parcel (currently occupied by Maple Lane School) to Thurston County for a municipal water supply reservoir, Thurston County will assume the responsibility for building frontage improvements along Old Highway 9 for the proposed reception center. This would include upgrades or improvements to the Prairie Creek Bridge.[3]

- **Traffic Impact Fees:** Within Thurston County, traffic mitigation fees are determined through the SEPA review process; specifically under the authority of WAC 197-11-660 (Substantive authority and mitigation) and the Concurrency Ordinance (Chapter 17.10) adopted under Chapter 17.09.150 (Substantive Authority) of the Thurston County Code. The fees within the Grand Mound area were recently updated to account for developer funded frontage improvements that have been completed as well as incorporating current construction cost data. The proposed reception center is projected to add PM peak hour traffic to two corridors with planned improvements—Old Highway 99 and US 12 (Grand Mound Intersection Improvements). The following summarizes the estimated impact fees for each:[4]

  - Based on the project traffic assignments, the Reception Center is forecast to add 98 PM peak hour trips on the affected segments of US 12. The County Road Project (CRP) UGA – US 12 – Grand Mound Intersection Improvement fee rate is $1,188 per new trip. Therefore, the fee for this project would be $116,424.

  - There are four CRP projects along Old Highway 99 that would be impacted by the proposed reception center traffic:

[3] Email communication, Scott Lindblom – Engineering Program Manager/Design, Thurston County Public Works, August, 11, 2011.
[4] Fee rates and trip allocation method provided by Scott Lindblom – Engineering Program Manager/Design and Kevin Hughes – Development Review, Thurston County Public Works, August, 12, 2011.

61304 – 201st to US 12: rate of $250 per trip x 17 trips = $4,250
61332 – 203rd to 201st: rate of $492 per trip x 17 trips = $8,364
61442 – Grand Mound UGA to Great Wolf: rate of $742 per trip x 62 trips = $46,004
61470 – Great Wolf Lodge to 203rd: rate of $525 per trip x 17 trips = $8,925

Based on fees described for each project above, the total traffic impact fee for the reception center is estimated at **$183,967**.

WSDOT is no longer collecting fees for the I-5 Grand Mound Interchange Replacement and Reconfiguration project nor for any other nearby WSDOT project. Therefore, no fees would be due to WSDOT for this alternative.

Public Services

Police Services

No significant adverse impacts to police services are anticipated; therefore, no mitigation is proposed.

Fire/EMS Services

- A Memorandum of Understanding would be developed between the Department of Corrections and the local jurisdiction to specify and clarify fire response and emergency medical services responsibilities and procedures.

Schools

No significant impacts to schools would be anticipated; therefore, no mitigation measures are proposed.

Parks and Recreation

No significant impacts would be anticipated; therefore, no mitigation measures are proposed.

Utilities

All Sites

Electrical and Natural Gas

- This project would comply with the Washington State Energy Code to reduce energy consumption.

- The project would meet or could exceed the Washington State Energy Code requirements in effect at the time of permitting. Additionally the project could exceed federal energy standards (adopted in ASHRAE Standard 90.1-Energy Standard for buildings) by at least 15% (Thurston County Site) and 25% (Mason County and

Bremerton Sites). Measures to mitigate potential energy and natural resource impacts may include the following:

- Heat Recovery on 100% outside air systems greater than 5,000 cfm. Heat recovery on systems smaller than 5000 cfm that operate 24 hours per day.
- Heat Recovery on minimum outside air systems with more than 5,000 cfm outside air
- Demand Controlled Ventilation on minimum outside air systems with less than 5,000 cfm of outside air
- High efficiency condensing boilers (92% efficiency or greater)
- Water heaters (96% efficiency or greater)
- Low flow fixtures (shower heads) to reduce hot water consumption
- Passive cooling for areas that do not operate 24 hours per day that are located outside the inmate areas. This include spaces associated with visiting, exterior administration, staff support, and custody.
- Low transport energy for fans/pumps
- Low flow kitchen hoods controlled by temperature with variable make-up air.
- Modular water source heat pumps for process cooling (telecommunication rooms and control rooms) and building environmental cooling when cooling is required in select areas. Use rejected heat to preheat domestic hot water. Use heat pumps for heating when environmental cooling is not required.

Bremerton Site

Water

- Approximately 3.2 miles of 12-inch water main would need to be constructed plus a new booster pump and a 0.5 million gallon reservoir in association with the water main extension.
- Onsite improvements would likely consist of an 8-inch or 10-inch water main loop with fire hydrants to provide fire protection.
- Required offsite water main improvements would primarily be constructed within the road prism of SR 3. However, the work would require a stream culvert crossing of the Union River. Mitigation for this work would include minimizing disturbance of buffer areas by staying within the road prism above the stream culvert, and site restoration to meet City of Bremerton requirements.

Sanitary Sewer

- To provide a new sanitary sewer service to this site, the City of Bremerton has stated that DOC would need to construct two pump stations, approximately 1.3 miles of 8-inch force main along SR 3, 0.85 mile of 8-inch gravity main on Port of Bremerton property, an MBR treatment facility on Port of Bremerton property near the Olympic Industrial Park, and one mile of 8-inch reclaimed water force main on Port of Bremerton property.

- Onsite improvements would likely consist of an 8-inch gravity main that would connect to the new offsite extension on Lake Flora Road.

- Construction of the majority of the required offsite sewer utilities would be within the existing road prism. However, the work would require two stream crossings: the Union River and the Northeast Fork of the Union River. Construction of the MBR treatment facility on the Port of Bremerton property may require work in the proximity of sensitive areas. Mitigation for this work would include minimizing disturbance of buffer areas by boring beneath the river, and site restoration to meet City of Bremerton requirements.

Stormwater

- Storm drainage improvements to mitigate for new impervious surfaces service to this site would meet the 2005 *SMMWW*, as applied by the City of Bremerton.

- Because the onsite soils are generally not supportive for infiltration of stormwater, flow control would utilize open ponds that would temporarily store stormwater from the site while releasing at a controlled rate to the site's natural discharge location(s). Underground detention pipe is an alternative if needed due to the potential of wildlife hazards from the ponds in relation to the flight paths from the nearby airport.

- Mitigation for this work would include minimizing disturbance of work areas and site restoration to meet City of Bremerton requirements. Sustainable design elements such as rain gardens and porous pavement would help to mitigate stormwater impacts.

Natural Gas, Electrical and Telecommunications

- In order to provide a new 12.5kV electrical service to the Bremerton Site, PSE would be required to rebuild the existing SIN-25 medium voltage utility distribution feeder along SR 3 to create a double circuit configuration for a distance of approximately 3.25 miles. DOC would be responsible for funding this improvement.

- PSE would also need to upgrade the existing Sinclair Inlet substation in order to support the estimated load of the Westside Prison Reception Center. DOC would be responsible for funding this improvement.

- In order to provide new telecom service to this site, Kitsap Public Utility District (KPUD) in conjunction with NoaNet would extend a new 12-strand single mode fiber optic cable and 200 pair copper cabling the KPUD right-of-way to the Bremerton Site and extended into the telecommunications demarcation point within the Prison Reception Center. DOC would be responsible for funding this improvement.

- Offsite gas, electrical and telecom distribution would occur within existing right-of-way or utility easements wherever possible. Gas would be placed underground and electrical service to the site would largely use existing overhead power poles.

Mason County Site

Water

- The City of Shelton would require DOC to construct approximately 1.2 miles of 12-inch ductile iron water main along West Dayton Airport Road (SR 102) from the Washington State Patrol (WSP) offices to the site. Currently, there are plans for a 2-mile water main extension to extend water to the WSP, but funds have not yet been obtained to construct this portion. DOC would be required to fund and construct this water main extension if the current project fails to get funding.

- Onsite improvements would likely consist of an 8-inch or 10-inch water main loop with fire hydrants to provide fire protection. The onsite loop would connect to the new water main in West Dayton Airport Road (SR 102).

- Construction of the required offsite and onsite water utilities would be within the existing road prism of State Route 101 and West Dayton Airport Road (SR 102) or outside of any sensitive areas. Mitigation for this work would include minimizing disturbance of the work *areas and site restoration to meet Mason County requirements.*

Sanitary Sewer

- In order to provide a sanitary sewer service to this site, an 8-inch gravity main would need to be constructed onsite, as well as a pump station to connect to the existing force main located within West Dayton Road (SR 102) near the north property line.

- Construction of the required offsite and onsite sanitary sewer utilities would be within the existing road prism or outside of any sensitive areas. Mitigation for this work would include minimizing disturbance of the work areas and site restoration to meet Mason County requirements.

Stormwater

- The onsite soils are generally supportive for infiltration of stormwater if ground water does not inhibit the infiltrative characteristics. Flow control would utilize a combination of open infiltration ponds, swales, and possibly infiltration pipe that would temporarily store stormwater from the site while releasing to the subsurface soils. The depth to ground water has not yet been established. If ground water elevations are determined to be at an elevation that will inhibit infiltration, detention pond(s) or tanks may be necessary to temporarily store storm water while releasing to the downstream drainage features at a pre-determined rate. Alternately, the building and site improvements could be constructed at higher elevations that may allow more flexibility with infiltration.

- Storm drainage improvements to mitigate for new impervious surfaces service to this site would meet the 2005 *SMMWW*, as applied by Mason County. Mitigation for this work

would include minimizing disturbance of work areas and site restoration to meet Mason County requirements. Sustainable design elements such as infiltration, rain gardens, and porous pavement would help to mitigate stormwater impacts.

Natural Gas, Electrical and Telecommunications

- An upgrade of approximately 5,900 lineal feet of the offsite natural gas main from 4 in. to 8 in. would be required. DOC would be responsible for funding this upgrade.

- In order to provide a new 12.5kV electrical service to this site, Mason County PUD No. 3 (PUD3) would construct a new distribution substation on property that PUD3 currently owns at the intersection of Dayton-Airport Road and Shelton-Matlock Road. This new substation would be located approximately 2.85 miles away from the proposed *Westside Prison Reception Center* on the Mason County Site. DOC would be responsible for funding this improvement.

- In addition to constructing a new substation, PUD3 would install a new dedicated feeder from the new distribution substation to the *Westside Prison Reception Center* site. DOC would be responsible for funding this improvement.

- A new 12-strand single mode fiber optic cable and 200 pair copper cabling would be installed from the PUD3 right-of-way to the telecommunications demarcation point within the *Westside Prison Reception Center*. DOC would be responsible for funding this improvement.

- Offsite gas, electrical and telecom distribution would occur within existing right-of-way or utility easements wherever possible. Gas would be placed underground and electrical service to the site would largely use existing overhead power poles.

Thurston County Site

Water

- To achieve connection to the public water system for domestic water and fire protection water to this site, an extension of approximately 1,000 feet of new 12-inch water main from the treatment plant (located adjacent to the site on the east side of Old Highway 9) to the site would need to be constructed, as well as constructing approximately 5,600 feet of new 8-inch water main in Old Highway 9, and connecting to the existing 12-inch water main at the intersection of Old Highway 9 and Old Highway 99.

- Onsite existing water mains would need to be removed and replaced around the new facility and new fire hydrants installed.

- The new offsite water mains are proposed to be constructed within the existing road prism. The onsite water mains are proposed to be constructed outside of the existing wetland and stream buffers where possible.

- Required water main improvements easterly toward Old Highway 99 would require crossing beneath Prairie Creek at the bridge crossing. Mitigation for this work would

include minimizing disturbance of buffer areas and site restoration to meet Thurston County requirements.

- The two existing onsite wells would be decommissioned during the construction phase. Appropriate documentation would be submitted to the Department of Ecology during the design phase for the relinquishment of the water rights associated with these two wells to Thurston County.

Sanitary Sewer

- In order to meet the increased waste water flows of the *Westside Prison Reception Center*, the County treatment plant would need to have expanded capacity. Thurston County would be responsible for the construction of a new oxidation ditch to accommodate the additional loading.

- Onsite improvements would include replacing some of the gravity mains, as well as replacing the existing grinder pumps with larger pumps, and possibly expanding the volume of the concrete waste water wet well.

- Sanitary sewer improvements would be necessary within the wetland/stream buffer for the both the private gravity system and the public vacuum system. Mitigation for this work would include minimizing disturbance of buffer areas and site restoration to meet Thurston County requirements.

Stormwater

- Flow control would utilize a combination of open ponds, swales, and possibly infiltration pipe that would temporarily store stormwater from the site while releasing to the subsurface soils. A portion of the existing storm system would be reused as an emergency overflow for the ponds.

- Storm drainage improvements to mitigate for new impervious surfaces would meet the 2005 *SMMWW*, as applied by Thurston County. Mitigation for this work would include minimizing disturbance of work areas and site restoration to meet Thurston County requirements. Sustainable design elements such as infiltration, rain gardens, and porous pavement would help to mitigate stormwater impacts.

Natural Gas, Electrical and Telecommunications

- In order to provide new telecom service to this site, Qwest would extend a new 12-strand single mode fiber optic cable and 200 pair copper cabling from the Qwest right-of-way to the telecommunications demarcation point within the *Westside Prison Reception Center*. DOC would be responsible for funding this improvement.

- PSE has indicated a need to upgrade the offsite gas distribution to service this site with uninterruptible gas. The upgrade will include replacing 5900 ft. of 4 in. gas main with new 8 in. gas main. it is anticipated that this upgrade would occur within existing right-of way or utility easements wherever possible.

- Minor electrical metering revisions would be required by Puget Sound Energy. DOC would be responsible for funding these revisions.

Economics

No impacts have been identified and no mitigation is required.

1.8 Significant Unavoidable Adverse Impacts

Earth

With implementation of identified mitigation measures, no significant unavoidable adverse impacts would be anticipated.

Air Quality

No significant unavoidable air quality impacts were identified.

Plants, Animals, Habitat and Surface Water Features

No significant unavoidable adverse impacts would be anticipated at the Mason County or Thurston County sites.

Development of the proposed Westside Prison Reception Center on the Bremerton Site would unavoidably impact approximately 45,289 sq. ft. of Category III Wetlands (per BMC 20.14.320). Mitigation in accordance with federal, state and location regulations is proposed. With implementation of the proposed mitigation, no significant impacts would be anticipated.

Energy (Greenhouse Gas Emissions)

Declaring the impacts of climate change and GHG emissions significant or not significant implies an ability to measure incremental effects of global climate change. Scientific research and analysis tools sufficient to determine a numerical threshold of significance have not been established at this time and conclusions would be speculative. However, further information on the potential cumulative impact of GHG emissions is not considered essential to a reasoned choice among the alternatives in this Draft EIS.

Environmental Health/Environmental Site Hazards

No significant unavoidable adverse impacts would be anticipated with implementation of the proposed mitigation measures.

Noise

With implementation of identified mitigation measures, no significant unavoidable adverse impacts would be anticipated.

Land Use

The Proposed Actions would convert the existing site(s) to prison reception center use. With implementation of the mitigation measures, no significant unavoidable adverse land use impacts would be anticipated with development of the proposed prison reception center at any of the three sites.

Relationship to Plans, Policies and Regulations

With the project design features and proposed mitigation described in Section 3.8.3 above, the Bremerton, Mason County, and Thurston County Sites should not have a significant unavoidable adverse impact to applicable plans and policies.

Employment, Population and Housing

No significant unavoidable adverse impacts would be anticipated.

Aesthetics, Light and Glare

Aesthetics

Prison reception center development would change the aesthetic character of the Bremerton and Mason County Sites, and intensify the aesthetic character of the Thurston County Site. However, no significant unavoidable adverse impacts would be anticipated.

Light and Glare

Prison reception center development would result in an increase in light and glare conditions on the Bremerton and Mason County Sites, and generally represent a continuation of light and glare conditions on the Thurston County Site. No significant unavoidable adverse light and glare-related impacts would be anticipated.

Cultural Resources

With implementation of identified mitigation measures, no significant unavoidable adverse impacts would be anticipated.

Historic Resources

With implementation of identified mitigation measures, no significant unavoidable adverse impacts to historic resources would be anticipated.

Transportation

The proposed prison reception center at any of the three sites would generate an increase in daily and peak hour traffic that could slightly increase delay at study area intersections. However, the increases in delays are not projected to be significant at any of the three sites.

Public Services

Police Services

No significant adverse impacts to police services would be anticipated.

Fire/EMS Services

With implementation of the proposed mitigation measures, no significant impacts would be anticipated.

Schools

No significant unavoidable adverse impacts to schools would be anticipated.

Parks and Recreation

No significant unavoidable adverse impacts would be anticipated.

Utilities

New utility line extensions and some expansions of utility facilities would be required to serve the Westside Prison Reception Center at any of the three site alternatives. With implementation of the identified mitigation measures, no significant unavoidable adverse impacts are anticipated.

Economics

The host jurisdictional one-time and ongoing revenues exceed their associated costs. No significant unavoidable adverse impacts have been identified.

CHAPTER 2

Description of Proposed Action(s) and Alternatives

CHAPTER 2

DESCRIPTION OF PROPOSED ACTION(S) AND ALTERNATIVES

This chapter of the Draft Environmental Impact Statement (DEIS) describes the Proposed Action(s) and Alternatives for the *Westside Prison Reception Center* project. The site selection process utilized to identify the three site alternatives analyzed in this EIS is also described. Please see **Chapter 1** of this document for a summary of the findings on this DEIS and **Chapter 3** for a detailed presentation of the affected environment, significant environmental impacts and mitigation measures of the Proposed Action(s) and Alternatives.

2.1 INTRODUCTION

Total male prison confinement in Washington State is currently 99 percent of capacity and the Washington Caseload Forecast Council predicts the male prison population in the state of Washington will increase in the future. Additionally, the Washington State Legislature has established the goal of closing old and inefficient prison facilities (including the recently closed McNeil Island Corrections Center) to increase efficiency and reduce overall long-term operational costs.

In an effort to provide additional prison bed capacity and improve the efficiency of existing correctional facilities, the Washington State Department of Corrections (DOC) has determined that the existing prison reception center functions conducted at a portion of the Washington Correctional Center (WCC) near Shelton should be returned to prison use to provide additional capacity for male offenders and a new facility designed specifically for reception center use should be constructed in western Washington. The WCC was originally designed as a prison facility and does not allow for efficient performance of reception center functions. As a result, DOC has started the siting, EIS, and planning processes for a new prison reception center. The Washington State Legislature has authorized funding for land acquisition, bridging documents, and some permitting. Funding for construction and operation of the proposed *Westside Prison Reception Center* will be requested in future biennium.

A reception center is the first place offenders go after sentencing. Offenders are brought to the facility from local jails throughout Washington. During the reception process offenders are assessed for physical and mental health, security and management needs, and other needs such as education and chemical dependency treatment. Long-term correctional placement is determined after the assessment and offenders are transported from the reception center to the assigned facility for long-term incarceration. The proposed 356,000 sq. ft. prison reception center facility will provide space for 1,024 beds and reception center services. The facility would manage all male offenders admitted to the prison system in the state of Washington for a new conviction, and could also house offenders moving from one facility to another, or offenders with six months or less to release to the community.

This EIS analyzes the environmental conditions associated with three site alternatives being considered as the location of the proposed *Westside Prison Reception Center*; Bremerton Site, Mason County Site and Thurston County Site.

2.1.1 Proponent

The proposed *Westside Prison Reception Center* project is sponsored by the Washington State Department of Corrections.

2.1.2 Project Location

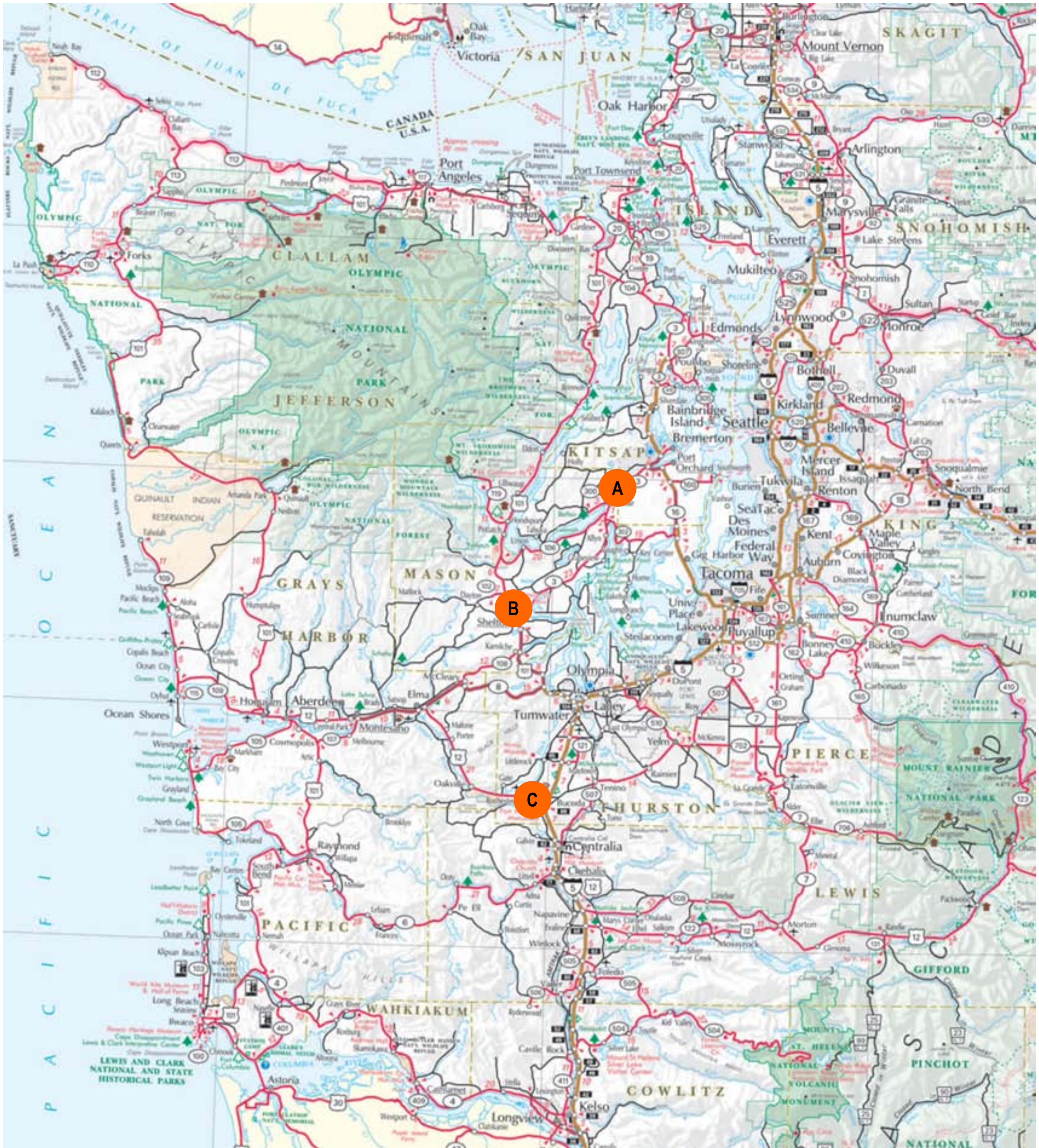
Three alternative sites are being considered as the location for the proposed *Westside Prison Reception Center*, as depicted on **Figure 2-1**. Each is summarized below in alphabetical order with more detailed descriptions of each provided in Section 2.4, **Description of Existing Site Conditions**.

- **Alternative Site – Bremerton**
  - *Overall Property Size* – Approximately 600 acres.
  - *Site Size*– Approximately 60 acres.
  - *General Site Location* – This site is located southeast of SR3 and northeast of SW Lake Flora Road in Bremerton.
  - *Existing Site Character* – The site is undeveloped and vegetated.

- **Alternative Site – Mason County**
  - *Overall Property Size* – Approximately 497 acres.
  - *Site Size* – Approximately 50 acres.
  - *General Site Location* – This site is located south of State Route 102 and northeast of the existing Washington State Correctional Center near Shelton.
  - *Existing Site Character* – The site is undeveloped and vegetated.

- **Alternative Site – Thurston County**
  - *Overall Property Size* – Approximately 209 acres.
  - *Site Size* – Approximately 209 acres.[1]
  - *General Site Location* – This site is located at 20311 Old Highway 9 SW in Grand Mound.
  - *Existing Site Character* – The site contains buildings and related facilities associated with the recently closed Maple Lane Juvenile Detention Facility.

[1] The Thurston County site is owned by the State of Washington and contains the recently closed DSHS Maple Lane Juvenile Detention Facility. Of the approximately 209 acre site, reception center development would be limited to the approximately 55 acre area containing the Maple Lane Juvenile Detention Facility. If selected as the location of the Westside Prison Reception Center, the entire 209 acre property would likely be transferred from one state agency (DSHS) to another state agency (DOC).



A Bremerton Site
B Mason County Site
C Thurston County Site

Not to Scale

North

Source: EA|Blumen, 2011

Figure 2-1
Site Location Map

2.2 PROJECT OVERVIEW

The Proposed Actions include SEPA compliance in conjunction with and to support the following:

- Site selection, construction and operation of the *Westside Prison Reception Center* at any one of the site alternatives;

- Land use regulatory and/or zoning changes that would be necessary in order to accommodate the *Westside Prison Reception Center* at any one of the sites; and,

- Future permits that would be required for construction and development of the *Westside Prison Reception Center* at the selected site.

Three possible site alternatives have been identified for the *Westside Prison Reception Center*. These alternatives meet the definition of "reasonable alternatives" under the State Environmental Policy Act (SEPA)[2] in that they could all feasibly attain or approximate the project objectives (see **Section 2.5** for a listing of the project objectives).

As indicated earlier in this chapter, the proposed *Westside Prison Reception Center* is intended to receive male offenders immediately following sentencing for the purpose of assessing physical and mental health, security and management needs, as well as other factors such as education and chemical dependency treatment. After completion of these assessments, the offenders are assigned to other correctional facilities in the state for long-term incarceration. The typical offender would be housed at the prison reception center for 40 days before being transferred to the long-term correctional facility (refer to **Section 2.6** for a more detailed description of the proposal).

The proposed prison reception center facility would contain approximately 356,000 sq. ft. of building area and provide up to 1,024 beds, as well as areas of intake, assessment, classification, food service, health services, administration and other support services. The proposed prison reception center would require a staff of approximately 478 personnel and on-site parking to accommodate approximately 400 vehicles for staff and visitors.

2.3 BACKGROUND INFORMATION

The following provides background information concerning:

- Department of Corrections Facilities Statewide;
- the site selection process for the proposed *Westside Prison Reception Center*; and
- the environmental review process for this project.

[2] WAC 197-110786, 197-11-440(5)

2.3.1 Department of Corrections Facilities Statewide

The Washington State Department of Corrections (DOC) is responsible for administering adult corrections programs operated by the State of Washington. This includes state correctional institutions and programs for offenders supervised in the community. DOC has approximately 8,000 employees and has a current biennial operating budget of $1.8 billion.

The law establishing DOC identifies several broad objectives for the agency as follows: 1) operate in a manner that provides maximum safety for the public, staff and offenders; 2) punishes those convicted of violating criminal laws by denying them their personal liberty; and, 3) positively impacts offenders by stressing personal responsibility and accountability, and by discouraging recidivism.

In 2011, the DOC confined over 17,800 offenders of which approximately 92.5 percent were male offenders and 7.5 percent were female. Male offenders were confined in 10 prisons of varying size and mission across the state, as shown in **Figure 2-2**.

- Airway Heights Corrections Center
- Cedar Creek Corrections Center
- Clallam Bay Corrections Center
- Coyote Ridge Corrections Center
- Larch Corrections Center
- Monroe Corrections Center
- Olympic Corrections Center
- Stafford Creek Corrections Center
- Washington Corrections Center
- Washington State Penitentiary

In 2011, approximately 99.3 percent of the DOC's total prison confinement capacity was utilized.

Male offenders, with the exception of offenders under sentence of death, first go to the reception center at the Washington Corrections Center in Shelton. Female offenders are sent to the reception center at the Washington Correctional Center for Women in Gig Harbor. The offenders spend from four to six weeks at the reception centers, where they receive medical examinations, testing and psychological evaluations before being transferred to the assigned facility for long-term incarceration.

An offender's behavior is a significant factor in determining what level of security they require. Based on assessments, they are placed in the least-restrictive custody level that will provide for the safety of the public, staff and other offenders. Washington prison custody levels include minimum, medium, close and maximum. Privileges and opportunities for offenders are the least in maximum and the greatest in minimum.

Washington State Department of Corrections
Westside Prison Reception Center Draft EIS

Source: Washington State Department of Corrections, 2011

Figure 2-2
Washington State Prison Map

2.3.2 The Site Selection Process for the Proposed Westside Prison Reception Center

Overview

In 2010, the DOC initiated a 6-month process to identify site alternatives in western Washington for a new prison reception center that would serve its male offender population statewide. The initial phase of the siting process included requests for community interest, followed by a site screening and site-specific assessment. This process was accompanied by a community outreach effort that focused on coordination with interested communities and informational outreach through a dedicated website.

In April 2011, the site screening and site evaluation process was completed and three sites were identified for future detailed review as part of this Environmental Impact Statement (EIS): the Bremerton Site, the Mason County Site and the Thurston County Site. The siting process conducted through April 2011 is summarized below.

Request for Community Interest

The purpose of this task was to provide broad outreach to local governments and agencies to solicit potential sites for the proposed facility. Activities focused on preparation of the distribution list for the solicitation, preparation of solicitation materials and distribution to the mailing list.

Site solicitation materials were distributed in early November 2010 to approximately 450 cities, counties, tribes, port districts, special purpose government and chambers of commerce/economic development organizations. Recipients were asked to submit a notice of interest by early January 2011 with detailed responses by late January 2011.

A total of 16 sites were submitted to DOC for consideration. All proposals were timely and the DOC determined that each site would be considered for site selection. The sites submitted include (listed in order from north to south):

- Arlington (former Indian Ridge Correctional Facility)
- Bremerton Site
- Mason County Site 1
- Mason County Site 2
- McCleary Site 1
- McCleary Site 2
- McCleary Site 3
- Grays Harbor County (Satsop Business Park)
- Thurston County (former Maple Lane Juvenile Detention Facility)
- Raymond Site
- Morton Site 1
- Winlock Site 1
- Winlock Site 2

- Morton Site 2
- Lewis County
- Castle Rock

Site Screening

In January 2011, the DOC project team conducted preliminary site screening based on information submitted by the sponsoring jurisdictions to determine if any sites were clearly not viable for further review. Based on this initial review, the DOC concluded that all sites were feasible and all would be carried forward to the more detailed site evaluation process.

Site Evaluation

The focus of site evaluation process was to conduct a detailed review of each proposed site, which included: site visits; review of information provided by the site proponent, local agencies and service providers; and evaluation of the sites based on criteria that was established by DOC with input from the project team. The site evaluation process occurred February through April 2011.

DOC team members scheduled and conducted visits to all 16 sites. Site visits included a physical site reconnaissance, as well as meetings with local agency staff and site proponents to:

- gain additional information about each site;
- review and verify site information that was submitted in January by the sponsoring jurisdictions; and,
- clarify outstanding technical questions.

Information gained during the site visits added to the foundation of information that became part of the site evaluation process.

For each site, the DOC team reviewed all collected data, including responses to requested data and information collected at the site visits. Based on this information, the project team evaluated each site using 69 weighted[3] site evaluation criteria that were developed by DOC with participation by the project team.

The site evaluation process culminated in the identification of three candidate sites (Bremerton, Mason County and Thurston County) for further evaluation through the SEPA EIS process (discussed below). For each site, this EIS contains a description of site configurations, existing conditions, potential significant impacts of development of each site as the location of the proposed *Westside Prison Reception Center*, potential measures to mitigate adverse impacts, and significant adverse impacts that cannot be mitigated.

[3] Weighting of each criterion was provided by DOC.

2.3.3 The Environmental Review Process

SEPA Responsibilities and Compliance

For purposes of the proposed *Westside Prison Reception Center* project, the Washington State Department of Corrections is the Lead Agency under SEPA, consistent with the provisions of WAC 197-11-944. As indicated in the ***Fact Sheet*** of this Draft EIS, David B. Jansen, Director of Capital Programs for the Washington State Department of Correction, is the Responsible Official.

Determination of Significance and EIS Scoping

On April 22, 2011, a SEPA Determination of Significance and Request for Comments on the Scope of the EIS was issued for a 21-day public comment period (ending May 13, 2011). Copies of the notice were mailed to applicable agencies, organizations and individuals, as well as to owners/occupants of property located within 500 feet of each site alternative. Notice was published in the WA Department of Ecology's SEPA Register, the *Kitsap Sun*, the *Shelton-Mason County Journal*, *The Olympian*, and the *Daily Journal of Commerce*. Notice was also posted on or proximate to each site and within respective county or city offices.

Public EIS Scoping meetings were held in each jurisdiction to provide an opportunity for the agencies, organizations and the public to more fully understand the proposed project and to provide comments regarding the scope of the EIS. The scoping meetings were held on May 3, May 4, and May 6, 2011. Approximately 43 people attended these meetings and 17 people presented oral comments.

During the EIS scoping comment period, 24 comment letters/emails were received including two from state agencies, ten comment letters/emails from local jurisdictions and organizations and twelve letters/emails from individuals.

Additional information regarding the EIS Scoping process and issues raised are contained in the EIS Scoping Report, which is included on the Department of Corrections website (http://www.doc.wa.gov/business/capitalprograms/prisonsiting/). Written and oral comments were considered by DOC in determining the range of environmental issues to be evaluated in this Draft EIS for each site alternative.

EIS Process

This Draft EIS constitutes the second major phase of the overall EIS process for this project. The first phase was EIS Scoping and the final phase is the Final EIS. This Draft EIS has been prepared for the proposed *Westside Prison Reception Center*, based on information that is currently available and information prepared in support of this EIS. This environmental document addresses probable environmental impacts associated with siting, construction and operation of a prison reception center at any one of three possible sites and with the related land use actions, permits and approvals contemplated. As such, this constitutes a project-level EIS. This Draft EIS does not authorize a specific action or alternative nor does it recommend for or against a particular site alternative.

As noted in the ***Fact Sheet*** of this Draft EIS (title pg. and pg. v), a 45-day public comment period will follow issuance of this Draft EIS. During that time, the Washington State Department of Corrections, as SEPA Lead Agency, will accept written comments regarding this Draft EIS. Also during that timeframe, three public meetings are proposed (***Fact Sheet***, pg. v) to provide an additional opportunity for agencies, organizations and the public to submit comments regarding this Draft EIS.

The Final EIS is one of several key documents that will be considered by DOC in the final site selection process for this project. The Final EIS may include modifications to the project configuration that occur at any one of the site alternatives following issuance of the Draft EIS, written comments and testimony presented regarding the Draft EIS, and responses to those comments.

It is anticipated that no subsequent environmental review of the proposed project will be necessary for the site that is eventually selected by DOC. If, however, significant changes occur to the proposed project following issuance of the Final EIS or new environmental information is identified, DOC and/or the jurisdiction in which the selected site is located may determine that subsequent environmental analysis is necessary in order to address the project changes and/or the new environmental information.

2.4 DESCRIPTION OF EXISTING SITE CONDITIONS

The existing conditions of the three site alternatives for the proposed *Westside Prison Reception Center* are described below. The sites are presented in alphabetical order.

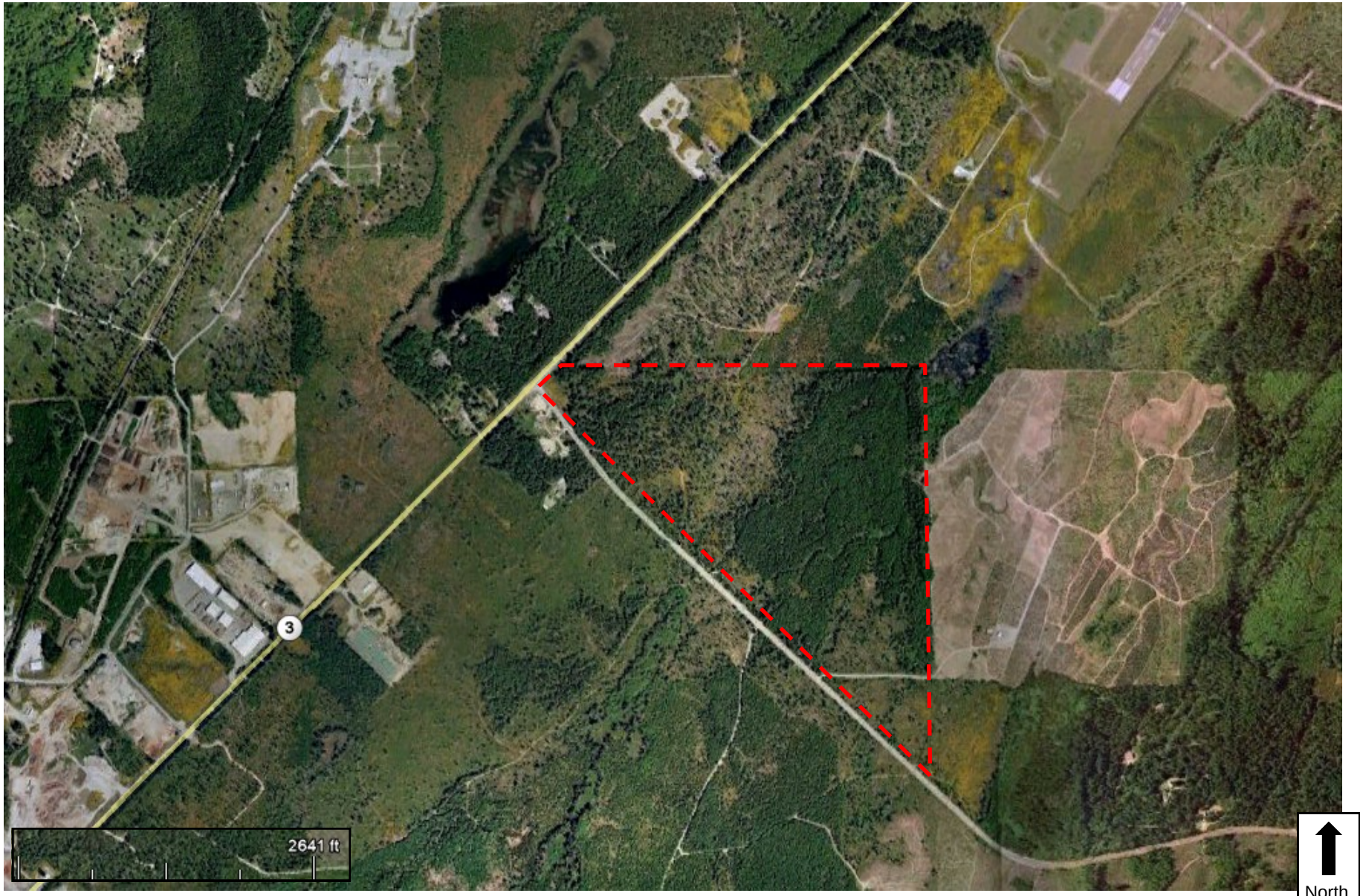
2.4.1 Bremerton Site Alternative

The 60-acre Bremerton Site (within the larger 600 acre property near the intersection of SR 3 and SW Lake Flora Road) is triangular in shape and is located southeast of SR 3 and northeast of SW Lake Flora Road (**Figure 2-3**). This site is currently held in private ownership.

Existing Land Uses

The Bremerton Site is presently undeveloped. The site is vegetated with mature trees and has been previously logged. The topography in the site is slightly sloping with the highest elevation at approximately 460 feet near the southeast corner, to 325 feet near the northwest corner. The only access to the site is via unpaved logging roads from SW Lake Flora Road.

Surrounding adjacent land uses include rural residential, commercial and industrial to the northwest (north of SR 3), rural residential to the southwest (south of SW Lake Flora Road), undeveloped area to the south, logging/forestry uses to the east, and the Bremerton National Airport to the northeast. See Section 3.7, **Land Use**, for additional information concerning existing land uses.



Source: EA|Blumen, Google, 2011

EA | BLUMEN

Figure 2-3

Bremerton Site - Existing Conditions

Existing Critical Areas

Currently, there are no mapped City of Bremerton-designated critical areas within this site. Detailed site investigation conducted for this EIS has identified 18 wetlands onsite, and one offsite nearby wetland and two onsite seasonal streams.

Lider Lake is located northwest of the site (north of SR 3) and has been mapped as a surface water body and a Class 1 Habitat Protection Zone by Kitsap County. Other City-designated critical areas are located nearby but offsite of the property, to the southwest, east and northwest of the site. They include Class 1 Habitat Protection Zones, streams, hydric souls, wetlands and geologic hazardous areas.

Geologic hazard areas identified during detailed site investigation include steep slope, landslide, seismic and erosion hazard areas. Additional details concerning on and offsite critical areas are provided in Section 3.1, **Earth**, and Section 3.3, **Plants, Animals, Habitat, and Surface Water Resources** of this Draft EIS.

Existing Utilities

The City of Bremerton is the purveyor of water and sewer utilities to properties within its boundary, including the Bremerton Site. Currently, there are no water or sewer services provided to this site. The nearest water services connection is approximately 2.2 miles from the site and the nearest sewer connection is approximately 5.3 miles from the site.

The natural gas service purveyor for the Bremerton Site is Cascade Natural Gas. There is currently no natural gas service provided to the site. The natural gas service connection is approximately one mile from the site.

The electrical service purveyor to the Bremerton Site is Puget Sound Energy. The site does not currently contain any electrical service infrastructure that would be appropriate to provide electrical utility service for the *Westside Prison Reception Center*.

Existing Comprehensive Plan, Zoning, Shoreline and Airport Planning

The Bremerton Site is located in the City of Bremerton's Urban Growth Area within the South Kitsap Industrial Area (SKIA) planning subarea. The SKIA is a 3,590-acre area that adjoins the north and south sides of SR 3, the Bremerton National Airport and adjacent properties, and extends to the Kitsap-Mason County boundary. Bremerton's Comprehensive Plan designates the Bremerton Site as "M/IC", a Manufacturing and Industrial Center. The current zoning of the site is "Industrial". The site is not located within a designated shoreline area.

As indicated above, the Bremerton Site is located adjacent to the Bremerton National Airport, which is owned and operated by the Port of Bremerton. Overall, the airport comprises an estimated 1,200 acres, of which approximately 800 acres are in aeronautical use.[4] Development associated with the airport as well as property in the vicinity of the airport is

[4] Washington State Department of Transportation. 2011. *Airport Facilities and Services Report*.

guided by a combination of federal, state and local entities -- including the Federal Aviation Administration (FAA), the Washington Department of Transportation (WSDOT) Aviation Division, and the City of Bremerton. Neither FAA nor WSDOT Aviation has direct authority over local land-use decisions. FAA regulations are directed specifically at airport and aircraft operations. In order to maintain the airport's certification, Bremerton National Airport must comply with FAA regulations as they pertain to the airport's property. WSDOT Aviation provides guidance to communities relative to land use compatibility. Indirectly, direction provided by FAA and WSDOT Aviation, can influence development regulations that are established by local jurisdictions. A provision of the State's Growth Management Act directs "[e]very county, city, and town in which there is located a general aviation airport that is operated for the benefit of the general public … shall, through its comprehensive plan and development regulation, discourage the siting of incompatible uses adjacent to such general aviation airport" (RCW 36.70.547). As described elsewhere in this Draft EIS, the Bremerton Site and the surrounding area were annexed to the City of Bremerton as part of the South Kitsap Industrial Area (SKIA) and the City is currently in the process of developing a subarea plan for SKIA. As such, the Port of Bremerton indicates that neither they nor the City have adopted WSDOT's land use compatibility zones; such, however, could be an outcome of the SKIA planning effort.

WSDOT's *Airports and Compatible Land Use Guidebook* identifies two major considerations. One consideration concerns the specific location of the land use relative to one of the State's six conceptual safety zones and the other addresses the nature of the land use within that zone. The zones are recommended guidelines (non-regulatory) and are based on accident location distribution data. Each zone corresponds to a phase of an aircraft's take-off or landing operation and the associated accident risk relative to proximity to the centerline of the runway. A proposed *Westside Prison Reception Center* building complex at the Bremerton Site would be located in Zone 6, roughly 100-200 feet west of conceptual Zone 2. Zone 6 is the area with the lowest aircraft safety risk (i.e., proximate to the runway but not area normally associated with take-off or final landing approach). Additional information regarding airport safety zones is provided in Section 3.8, **Relationship to Plans, Policies and Regulations**, of this Draft EIS.

2.4.2 Mason County Site Alternative

The approximately 50-acre Mason County Site (within the larger 497 acre property near the intersection of SR 102 and Eells Hill Road) is rectangular in shape and is located south of Dayton Airport Road (SR 102) and northeast of the existing Washington State Correctional Center (WCC), as shown on **Figure 2-4**. The site is currently held in private ownership.

Existing Land Uses

The Mason County Site is currently undeveloped. The site is vegetated with trees and has been previously logged for timber in the last 20 years. Elevations across the site range from approximately 280 feet near the southwest corner to approximately 335 feet near the southeast corner. Vehicular access to the site is from Dayton Airport Road (SR 102), a state highway.

Source: EA|Blumen, Google, 2011

EA | BLUMEN

Figure 2-4
Mason County Site - Existing Conditions

Surrounding adjacent land uses include undeveloped land to the north, an auto repair and salvage business with a single-family residence to the east, undeveloped land to the south and undeveloped land to the west. Further to the west is a PUD Peaking Station and to the southwest is the existing WCC, which houses DOC's existing prison reception center. See Section 3.7, **Land Use**, for additional information concerning existing land uses.

Existing Critical Areas

There are no mapped County-designated critical areas located within the Mason County Site. However, a 1.9-acre wetland has been identified within the northwestern portion of the site. In addition, the general area, including the site, is mapped as a Class 2 aquifer recharge area.

Other designated critical areas are located offsite to the west including the North Fork of Goldsborough Creek and associated wetlands, and south of the property including landslide hazard areas, potentially liquefiable soils and wetlands.

Geologic hazard areas identified during detailed site investigation include landslide, seismic and erosion hazard areas. Additional details concerning on and offsite critical areas are provided in Section 3.1, **Earth** and Section 3.3, **Plants, Animals, Habitat and Surface Water Resources** of this Draft EIS.

Existing Utilities

The City of Shelton is the purveyor of water and sewer utilities to the Mason County Site. Currently, there is sewer service provided to the site. Water service is planned to be extended to the Washington State Patrol property approximately one mile to the east of the site.

The natural gas service purveyor for the Mason County Site is Cascade Natural Gas. Natural gas service is currently provided to the site.

The electrical service purveyor to the Mason County Site is PUD #3. The site does not currently contain any electrical service infrastructure that would be appropriate to provide electrical utility service for the *Westside Prison Reception Center*.

Existing Comprehensive Plan, Zoning and Shoreline

The Mason County Site is located outside of an Urban Growth Area boundary within Unincorporated Mason County. Mason County's *Comprehensive Plan* has designated the site as "Rural Area". The current zoning of the site is "Rural Residential 20". The site is not located within a designated shoreline area.

2.4.3 Thurston County Site Alternative

The 209-acre Thurston County Site is located at 20311 Old Highway 9 SW in Grand Mound and is the site of the former Maple Lane Juvenile Detention Facility (see **Figure 2-5)**. The site is owned by the State of Washington. As indicated in **Figure 2-5**, the 55-acre northern portion of the site that would be developed under this alternative comprises the area containing the former Maple Lane Juvenile Detention Facility; generally corresponding with the developed area located within the existing perimeter roadway.

Existing Land Uses

The 55-acre northern portion of the Thurston County Site is developed with multiple structures that were associated with the Maple Lane Juvenile Detention Facility that formerly occupied the site. Such uses included: administrative offices, dormitories, utilities/boilers, recreational activities, classrooms, and medical facilities. Approximately 32 buildings, totaling approximately 240,000 sq. ft. in building area, are currently located on the site including the Administration Building (Building 10) which was constructed in 1917 and is listed on the national Register of Historic Places, School & Gym Building (Building 15), Voc-tech Building (Building 37), Commissary Building (Building 38), Steam Plant (Building 16), Multi Purpose Building (Building 11) and several housing structures (buildings 7, 30, 31, 39, 40 and 41). Refer to Section 3.12, **Historic Resources**, for a map and table of existing structures on the site.

An approximately 5-acre open space is located on the northeastern portion of this 55-acre area. An approximately 12-foot tall fence is located around the perimeter of the onsite buildings. A staff parking lot accommodating approximately 200 parking spaces is located in the north central portion of this portion of the site, outside the perimeter fencing. Mature trees are located around the perimeter of this 55-acre portion of the site, along the main entrance driveway, and around some interior buildings.

The topography on the northern 55-acre portion of the site is generally level with an elevation at or close to 160 ft. There is an approximate 20-foot elevation change between the northern 55-acre developed portion of the site and the southern 155-acre portion of the site where wetlands and floodplain associated with Prairie Creek and the Chehalis River are located. Primary vehicular access to the site is from Old Highway 9 SW.

Surrounding adjacent land uses include a dairy farm located to the northwest; rural residential, agricultural, religious uses and a water/sewer treatment plant to the northwest (north of Old Highway 9 SW); a public golf driving range to the immediate southeast (adjacent to the site); and undeveloped land to the south. See Section 3.7, **Land Use**, for additional detail about existing land uses.

Existing Critical Areas

The northern developed 55-acre portion of the site does not contain any wetlands or streams. However, stream buffer (associated with Prairie Creek) and wetland buffer areas of two offsite wetlands extend to the south and southwest edges of the developed portion of the site.

Source: EA|Blumen, Google, 2011

EA | BLUMEN

Figure 2-5

Thurston County Site - Existing Conditions

The majority of the southern undeveloped 155 acres of the overall 209-acre site are designated critical areas, including: wetlands, wetland buffers, flood zones, hydric soils and shoreline management/shoreline buffer areas associated with Prairie Creek and the Chehalis River. The entire site is mapped as a Category 1 critical aquifer recharge area. Geologic hazard areas identified during detailed site investigation on the developed portion of the site include steep slope, landslide, seismic and erosion hazard areas. Additional details concerning on and offsite critical areas are provided in Section 3.1, **Earth**, and Section 3.3, **Plants, Animals, Habitat, and Surface Water Resources** of this Draft EIS.

The Thurston County Site has been designated by the WA Department of Natural Resources (DNR) as threatened/endangered habitat for pocket gophers[5], prairie soils, and oak tree stands. Four mature oak trees are located in the northern, developed portion of the site, one south of the existing Voc-tech Building and three located north of the existing Administration Building; other oak habitat is located in the undeveloped portion of the site outside of the perimeter fence.

Existing Utilities

Thurston County is the purveyor of water and sewer utilities to the Thurston County Site. Currently, a well-water system is located onsite. The closest connection to the existing public water supply is 1.4 miles from the site. Public sewer utilities are currently provided to the site.

The natural gas service purveyor for the site is Puget Sound Energy. Natural gas service is currently provided to the site.

The electrical service purveyor is Puget Sound Energy. It is estimated by PSE that their existing distribution system and the existing 12.5kV electrical service at the site would be sufficient to meet the electrical requirement of the *Westside Prison Reception Center*.

Existing Comprehensive Plan, Zoning and Shoreline

The Thurston County Site is located within the Thurston County Urban Growth Area boundary. The northern developed portion of the site is also included in the Grand Mound Subarea and is designated as “Planned Industrial”. The southern portion of the site is designated as “Long-Term Agriculture”. The current zoning of the 55-acre northern portion of the site is “Planned Industrial”. The southern 155-acre undeveloped portion of the site is zoned “Long Term Agricultural”.

2.5 PROJECT OBJECTIVES

The existing male prison system is near capacity and it is projected that the State of Washington will experience an increase in the male prison population in the future. Additionally, the Washington State Legislature has established the goal of closing old and inefficient prison facilities to increase efficiency and reduce overall long-term operational costs. Accordingly, the Washington State Department of Corrections proposes to construct a new prison reception

[5] Site review conducted for this EIS, and confirmed by the Washington State Department of Fish and Wildlife, has concluded that pocket gophers are not located on the site.

center in order to improve operational efficiency and enable Washington Correctional Center at Shelton, WA to serve the original prison use for which it was designed.

For purpose of SEPA review (WAC 197-11-440) the following are the project mission and goals are the objectives of the proposal:

Mission

- Evaluate and classify incoming offenders
- Serve as a prison reception center for male offenders in the state
- Process new prison admissions, readmissions, violators and youthful offender categories
- Process and hold offenders in-transit
- Assess/classify/assign adult male offenders
- Hold offenders awaiting transfer to correctional facilities after completion of the reception process
- Provide safe, secure and appropriate housing and services for incoming offenders
- House offenders with a zero to six month sentence
- Conduct release planning for short- and long-term offenders
- Increase successful re-entry into society
- Provide offender transfer and transport to a permanent facility
- Supervise and manage offender releases

Goals

- Provide a prison reception center in western Washington of approximately 1,024 beds with space for the following: physical and mental health assessments, security and management need evaluation, educational and chemical dependency treatment assessment; and, associated parking, maintenance facility and other support uses.
- Provide a new prison reception center that utilizes state-of-the-art technology and space design concepts to maximize efficiency of reception center functions and minimize operational costs to the State of Washington.
- Provide some limited beds for offenders assigned to the prison reception center for less than six months of stay within the DOC prison system

- Provide two to three day temporary housing of offenders being transferred between prisons within the DOC system

- Provide a lawful and safe environment for offenders, staff, and visitors while providing reception center services for offenders under its jurisdiction.

- Provide a well designed and secure facility.

- To the extent possible, minimize the potential for impacts to environmentally sensitive areas, including wetlands and streams.

- Incorporate the principals of sustainability in all aspects of site and building design, construction, maintenance, and operation, as possible.

- Ensure that adequate public services and utilities are available to serve the facility at a reasonable cost to state taxpayers.

2.6 DESCRIPTION OF THE PROPOSED ACTIONS AND ALTERNATIVES

The Proposed Actions involve siting, construction, and operation of a prison reception center at any one of the three site alternatives in western Washington, and other actions that may be taken to authorize or facilitate the siting, construction, and operation of the prison reception center. In general, a proposed *Westside Prison Reception Center* constructed at any of the three site alternatives would be a stand-alone one to two-story, 1,024-bed facility containing approximately 356,000 sq. ft. of area. **Section 2.6.1** provides an overview of the proposed prison reception center at any of the sites, and **Section 2.6.2** provides details of the proposed *Westside Prison Reception Center* specific to the three alternative sites.

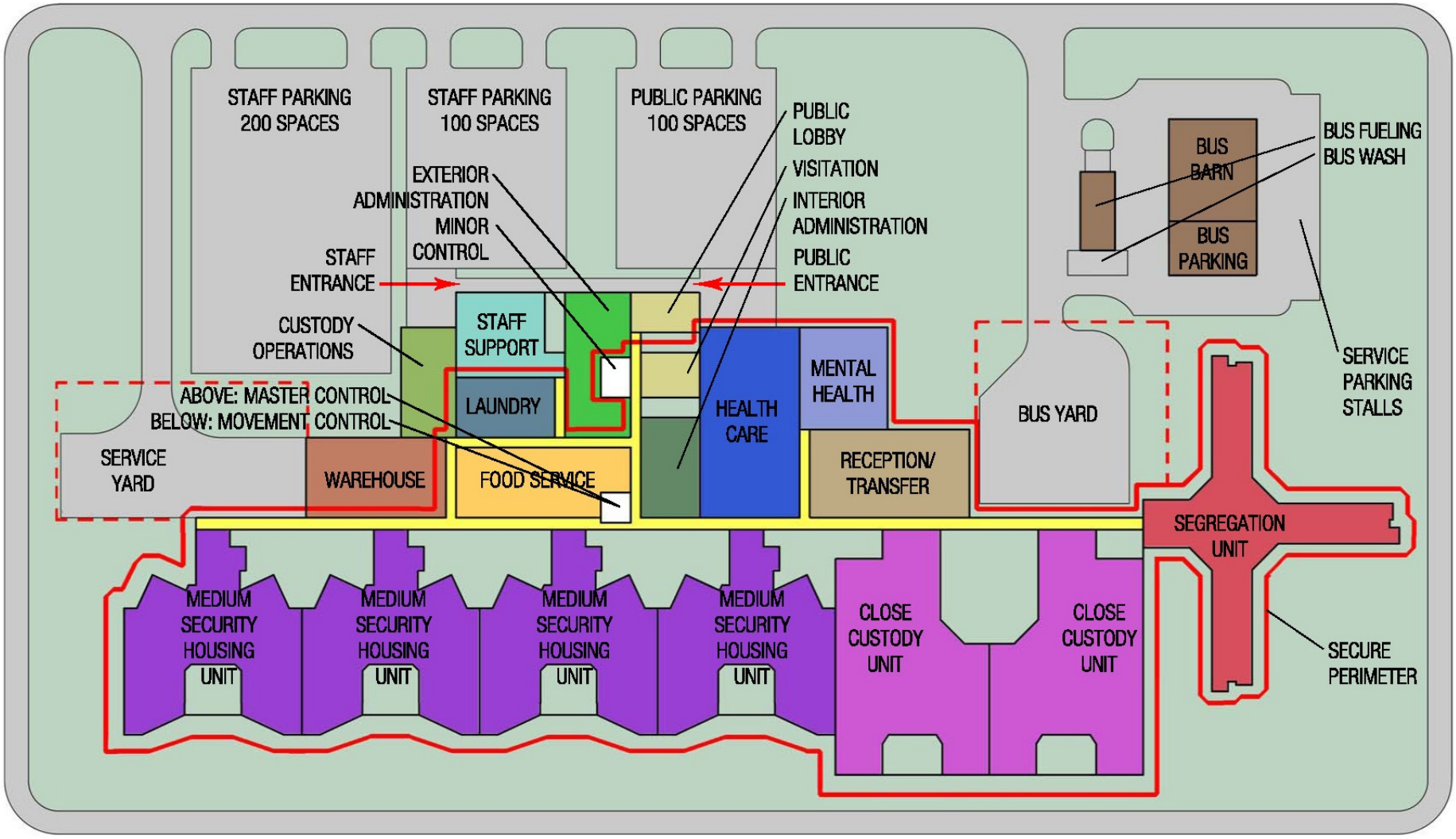
Cities and counties in Washington State that are planning under provision of the Growth Management Planning Act (GMA) are required to establish a process for identifying and siting essential public facilities. Essential public facilities include “those facilities that are typically difficult to site, such as airports, state of regional transportation facilities, state educational facilities, and state and local correctional facilities. The proposed *Westside Prison Reception Center* would constitute an essential public facility. Each jurisdiction has established a process to address such facilities, either through a specific Essential Public Facility review process or through the permit process.

2.6.1 Overview – Description of Features Common to the Site Alternative

The proposed *Westside Prison Reception Center* would consist of a series of major program elements. **Table 2-1** provides an approximate floor area and percentage breakdown of each program element; followed by a brief description of each program element within the main building. As noted previously, the estimated gross square footage of the proposed prison reception center would be 356,000 sq. ft. **Figure 2-6** provides a general schematic diagram of the prison reception center.

Table 2-1
RECEPTION CENTER MAJOR BUILDING PROGRAM ELEMENTS

Program Element	Approximate Sq. Ft.	Approximate Percentages
Medium Security Housing Units	128,703	36
Closed Custody Units	57,075	16
Segregation Unit	13,920	4
Public Lobby/Visitation	6,058	2
Food Service	11,675	3
Healthcare	19,282	5
Mental Health	7,863	2
Reception/Transfer	13,920	4
Interior Administration	4,342	1
Exterior Administration	6,760	2
Staff Support	7,397	2
Control Stations	2,041	1
Custody Operations	5,670	1
Laundry	5,688	2
Warehouse/Maintenance	16,841	5
Corridors and Mechanical Rooms	49,105	14
TOTAL	**356,340**	**100%**
Bus Barn (where required)	9,926	



**The layout of the facility at the Thurston County site would be different due to the retention of several existing buildings.*
***Note: This figure provides a general schematic illustration of reception center uses and their general special relationship; the actual layout of the reception center at the alternative sites could vary from this schematic depiction.*

Source: Integrus Architecture, 2011

Figure 2-6
General Schematic Design of Reception Center

- **Medium Security Housing Units** – Cell housing for offenders requiring Medium custody level. The four units of housing would consists of 736 beds with immediately adjacent space for classification and evaluation of offenders with additional space for offender services including dining, healthcare and social and religious service activities. Small outdoor, enclosed exercise yards would be provided immediately adjacent to the cells.

- **Closed Custody** - Cell housing for offenders requiring greater than Medium custody level. The two units of housing would consist of 288 beds with immediately adjacent space for classification and evaluation of offenders with additional space offender services for dining, healthcare and social and religious service activities.

- **Segregation Unit** - Cell housing for offenders requiring segregation custody level. These would be beds for offenders who cannot be placed in the offender general population for behavioral or security risks with other offenders. The single unit of housing would consist of 64 beds with space immediately adjacent consisting of small excise and showering areas. Dining would take place in the cells.

- **Visitation** – Secure area for offender and public visiting area. This space would be an open space with table and chairs for visiting with the offenders who will be spending their sentence of six months or less at the prison reception center.

- **Foodservice** – Offender food prep and food storage area to provide meals to the offenders. Food would be prepared in a kitchen using an offender work force with custodial supervision. Food would be placed on trays and into carts for movement to the housing units for distribution.

- **Healthcare** – Offender medical classification and medical service area. The offender's physical and dental health would be evaluated with a series of exams and tests. Limited bed space would be provided. If the offender has a serious health issue, he would be moved immediately to the appropriate DOC health institution for ongoing care.

- **Mental Health** – Offender mental classification and mental service area. The offender's mental health would be evaluated with a series of exams and tests. Limited bed space would be provided. If the offender has a serious mental health issue, he would be moved immediately to the appropriate DOC mental health institution for ongoing care.

- **Reception/Transfer** – Offender receiving and transfer processing area. This area would provide for the efficient processing of the new and transferred offenders to change out clothing, provide required intake information for the DOC system, and be assigned temporary housing within the facility. In addition, the space would be designed to process the offenders being transferred out to other institutions.

- **Interior Administration** – Custody staff office and support area for managing day to day offender operations, including office spaces with associated conference and administration work rooms.

- **Control Stations** – Custody staff area for managing offender, staff and public movement within the building with highly secure perimeters.

- **Laundry** – Offender and support services facility using laundry equipment for cleaning and refurbishing linens and clothing with offender work forces with custodial oversight. The laundry would be distributed by the offender workforce within the facility.

In addition to the uses that are noted above that would be contained within the main building, other reception center-type uses would occur outside of the secure perimeter of the main building. These include the following:

- **Warehouse** – Receiving and storing foods and goods for offenders and staff. Offender temporary property storage and mail processing would occur in this space.

- **Maintenance** – Shops and equipment storage for maintaining the facilities' buildings and grounds.

- **Custody Operations** – Support area for custody operations required outside the secure perimeter such as locksmith, investigative and incident response unit areas and evidence storage.

- **Staff Support** – Custody staff support areas such as staff lockers, training area and offices.

- **Exterior Administration** – Office areas for Superintendent, business office, support staff and records; including office spaces with associated conference and administration work rooms.

- **Public Lobby** – Area for receiving and screening visitors and volunteers.

- **Bus Barn** – Service building for maintaining facility vehicles.

- **Surface Parking** – Surface parking for up to 400 vehicles, including 100 public spaces and 300 staff spaces.

General Building Design

Prison Reception Center

The proposed new prison reception center would be housed in single, contiguous building (refer to **Figure 2-6**). The building would generally be divided along a main corridor with cell housing on one side and support areas on the other. Housing areas would generally be two stories in height and support areas would be single-story in height.

The building components would consist of the following:

- Secure exterior walls would generally be constructed of concrete panels. Windows would be limited in size and numbers in the reception/transfer, segregation housing and health services areas.

- Non-secure exterior walls may be concrete or steel framing with windows sized for typical office functions.

The areas requiring separation from secure and non-secure activities would be accommodated by using secure walls and secure openings within this building footprint.

The housing areas would generally be positioned behind and away from the public access point. Access for offender incoming and outing going traffic would be separated from public, staff and service vehicle access locations.

Grounds

The grounds surrounding the prison reception center would consist of parking, access roads, landscaping and open areas up to 300 ft from the building exterior. Fencing and gates would surround the bus and service delivery yards. Fencing would be located at the site perimeter property lines.

Utility enclosures for radio, emergency generator and electrical switch gear would be located within 50 feet of the prison and adjacent to service roads.

Service Building

A bus barn facility would be located on the Bremerton and Thurston County Sites. The bus barn would be a stand-alone building for maintaining buses, trucks, autos, maintenance equipment needed for the prison operations and offender transportation. For the Mason County Site, bus barn functions would be accommodated by the existing bus barn facilities located at the nearby Washington Correctional Center (WCC).

Staffing Requirements

It is anticipated that up to 478 employees would staff the proposed *Westside Prison Reception Center.* Employees would be categorized as custody, non-custody and health services staff as described below.

Custody Staff

Approximately 277 DOC trained staff for the management and supervision of offenders would be employed at the prison reception center. This staff is on duty continuously throughout the year and is rotated in three shifts in a single day. The majority of the staff would serve during the day shift with a lower number of staff during the swing and graveyard shifts.

Non-Custody Staff

Approximately 120 DOC non-custody staff would be employed for staff support functions at the prison reception center. This staff is generally on site during the day shift for five days a week. Staff categories for offender classification and education may be on site in the evenings and weekends. Cooking staff would be on site throughout all days.

Health Services Staff

Approximately 81 DOC health services staff needed for medical and mental health support and initial offender evaluations would be employed at the prison reception center. This staff is generally on site during the day shift for five days a week. Staff categories for offender health support would be on site full time in three shifts.

Sustainability

Sustainability is an important consideration in the development of the proposed *Westside Prison Reception Center*. The building will be designed to meet a LEED Silver[6] standard. Strategies to implement sustainable practice and features into the reception center include:

- siting the building for optimal daylighting and energy factors;
- site design that promotes using rain water and building runoff, rather that potable water for irrigation; incorporating low-flow fixtures into bathrooms, shower facilities and service areas to reduce the building's overall water use; and
- utilizing sustainable materials to increase indoor air quality and thermal comfort, such as materials with recycled content; no volatile organic compounds (VOC) finishes, adhesives and sealants; glazing that minimizes solar heat gain.

Security Alarms, Lighting and Transmission Antenna

No outside alarms are anticipated. Lighting would include building lighting, walkway lighting and parking lot lighting. Lighting fixtures would include features to focus lighting on the site and limit light directed toward off-site properties.

The prison reception center would include two transmission antennas (one to transmit and one to receive). One or both of the antennas could be located on the roof of the building or in a secure, stand-alone area proximate to the building. It is anticipated that the height of the antennas would be less than 100 feet above ground level.

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[6] **Leadership in Energy & Environmental Design (LEED)** is a green building certification system provided by a third-party, Green Building Certification Institute, verifying a building's design features by using proscribed metrics for environmental and energy considerations. The State of Washington requires a new state building meet the LEED Silver certification criteria which requires 50 points out of a possible 100 points to be met for the building design features.

2.6.2 Description of Each Site Alternative Associated with the Reception Center

The following is a description of the proposed *Westside Prison Reception Center* as it relates to each site alternative.

Bremerton Site Alternative

Building Complex

Location of the proposed *Westside Prison Reception Center* on the Bremerton Site would occupy approximately 27.5 acres (approximately 46 percent of the 60 acre site) consisting of buildings, surface parking, access drives and service/bus yard. Open space/landscaping would comprise an additional 12 acres of landscape and 10 acres of open space acres (approximately 37 percent of the site). In total, development of the new *Westside Prison Reception Center* at this site would result in the conversion approximately 49.5 acres (82 percent of the site) to a governmental/institutional use (including associated landscaping and open space). The remaining 10.5 acres (18 percent of the site) would remain in natural vegetation (see **Figure 2-7** for an illustration of the proposed prison reception center on the Bremerton Site and **Figure 2-8** for a massing diagram of the proposed prison reception center on the Bremerton Site).

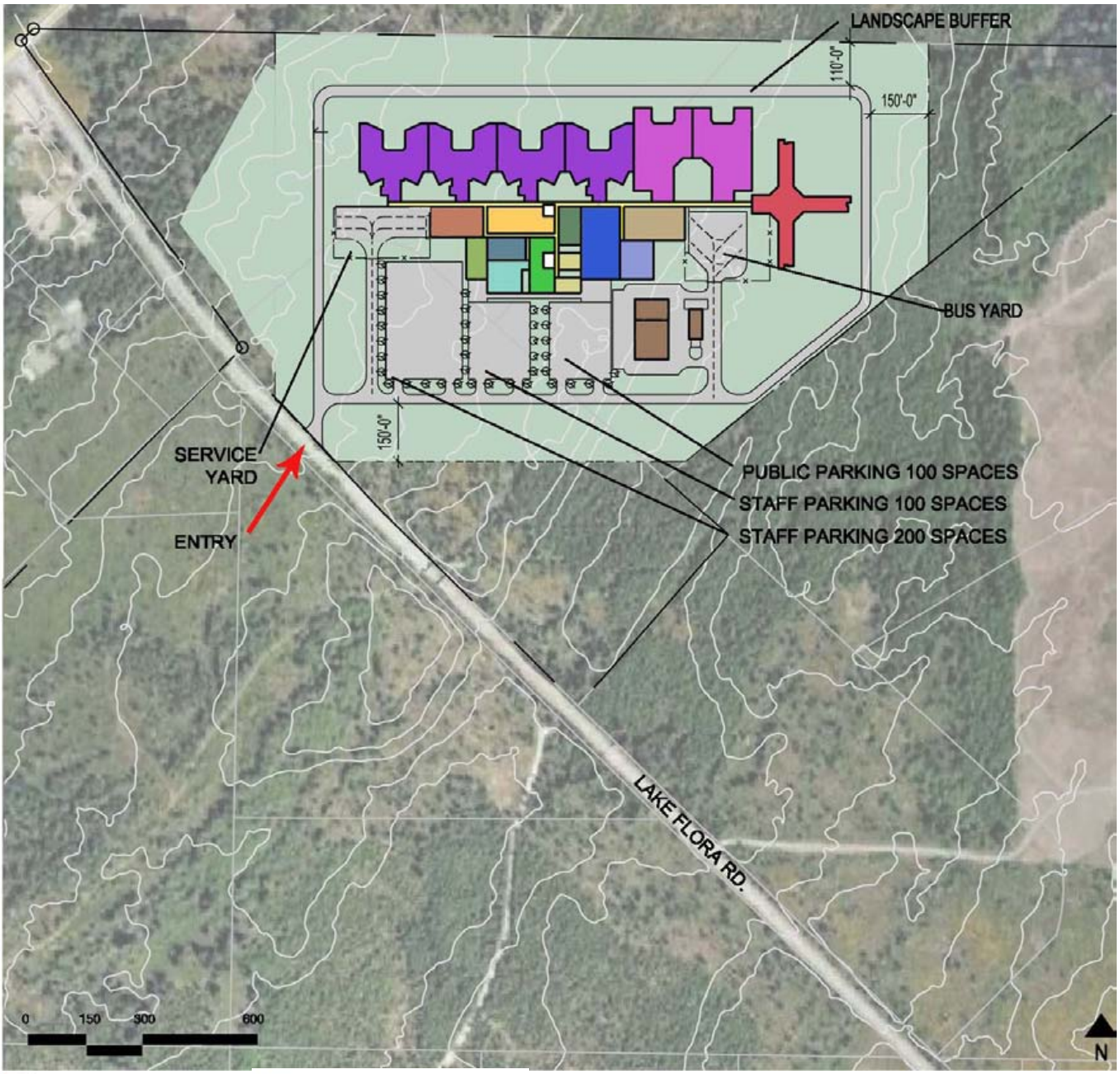
As shown by **Figures 2-7** and **2-8**, the proposed prison reception center at this site would be located in the northwest portion of the site and would be oriented in a east/west direction generally parallel with the north property line. Parking and services located outside of the secure main building would be located in proximity to SW Lake Flora Road (setback approximately 200 feet from the roadway) with the secure main building behind (north). As indicated earlier in this chapter, the secure portion of the building would be two stories in height and supporting structures outside of the main building would be one-story in height. The main building would be setback approximately 500 feet from Lake Flora Road.

Development of the *Westside Prison Reception Center* at the Bremerton Site would require the filling of nine Category III wetlands (moderate value) totaling 45,289 sq. ft. in area. Mitigation for impacts to the wetlands would meet federal, state and local regulations and provide wetland mitigation at a 2:1 ratio, providing 90,578 sq. ft. of replacement wetland area. See Section 3.3, **Plants, Animals, Habitat and Surface Water Resources**, for detail.

Vehicular Access and Parking

One access drive would provide vehicular ingress/egress to the site from SW Lake Flora Road. As shown by **Figure 2-7**, the main access drive would be located in the center portion of the site and would provide primary access for busses, staff and visitors.

The preliminary design concept indicates that the three proposed parking lots would provide approximately 400 spaces. Staff parking would be accommodated by two lots (one with 200 spaces and a second lot with 100 spaces) and public parking would be accommodated by a 100-space lot. A bus yard load/unload area and a service yard serving the warehouse would also be provided (see **Figure 2-7**).



Source: Integrus Architecture, 2011

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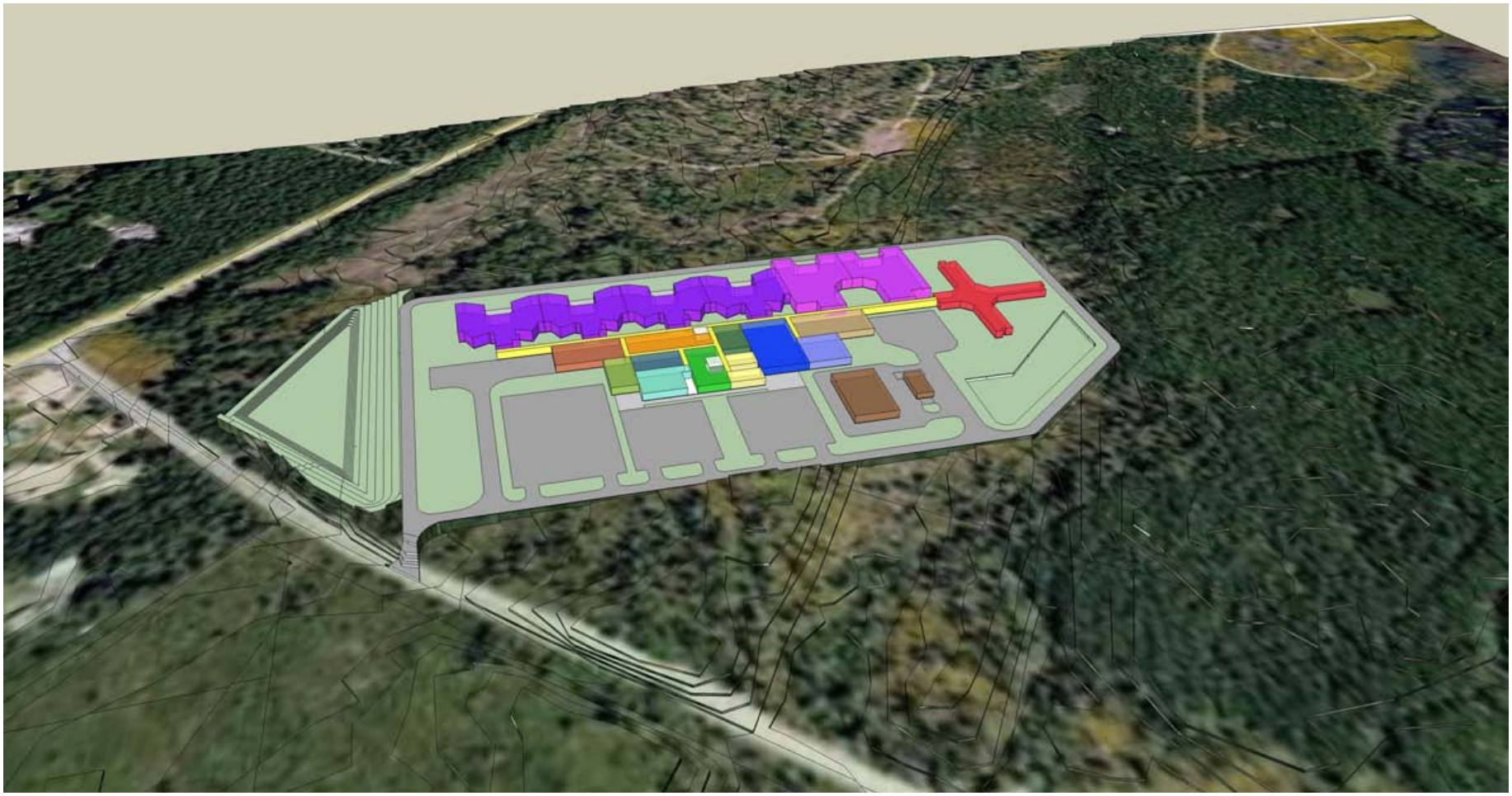
Figure 2-7
Bremerton Site - Site Alternative



Source: Integrus Architecture, 2011

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Figure 2-8
Bremerton Site - Massing Diagram

Street Frontage Improvements

Siting the *Westside Prison Reception Center* at this location would include curb, gutter and sidewalk, 5-foot wide bike lane, 6-foot wide planter strip and 12-foot wide travel lane along the entire project site frontage,based on current standards.

Landscaping

As noted previously, it is anticipated that approximately 9 acres (9 percent) of the Bremerton Site would be in landscaping. The majority of the landscaping would be provided as grass, with some trees and ornamental shrubs.

Grading

It is anticipated that approximately 320,000 cubic yards of earthwork would be required for construction of the *Westside Prison Reception Center* at this site (cut and fill would be balanced). Approximately 12,690 tons of crushed surfacing for the parking lot construction would be imported to the site..

Utilities

Water Service would be provided by the City of Bremerton. The City of Bremerton has indicated that the DOC would need to construct a new booster pump and reservoir may be needed to serve the reception center at this site. Water service to the site would be provided via a 3.2 mile extension from the existing 12-inch water line near the Bremerton Airport via SR 3 to SW Lake Flora Road and the site (a distance of approximately 3.2 miles), constructed by the DOC (See Section 3.15, **Utilities**, for detail).

Sewer Service would be provided by the City of Bremerton. The City treatment lagoons in the vicinity of the Bremerton Site do not have capacity for the *Westside Prison Reception Center*. To provide a new sanitary sewer service to this site, the City of Bremerton has stated that DOC would need to construct two pump stations, approximately 1.3 miles of 8-inch force main along SR 3, 0.85 mile of eight-inch gravity main on Port of Bremerton property, an MBR treatment facility on Port of Bremerton property, and one mile of 8-inch reclaimed water force main on Port of Bremerton property (see Section 3.15, **Utilities**, for detail).

Temporary and Permanent Stormwater Control systems for a reception center at this site would be designed and constructed in accordance with applicable City of Bremerton requirements (including compliance with the 2005 DOE Stormwater Manual). With development of the site, stormwater would be conveyed at a controlled rate to the site's natural discharge location, Lider Lake. Water quality treatment would be provided by wetponds, biofiltration, media filter drains or other methods as accepted by the City of Bremerton (see Section 3.15, **Utilities**, for detail).

Land Use Code

The City of Bremerton *Comprehensive Plan* designates the site as M/IC, a Manufacturing and Industrial Center.

The current zoning of the site is Industrial. Among the uses listed as conditionally permitted in the Industrial Zone by the Bremerton Municipal Code is Group Residential Facility – Class II. According to the Bremerton Zoning Code,[7] the definition of Group Residential Facility – Class II includes "*housing of persons needing correctional or mental rehabilitation*". Because the proposed *Westside Prison Reception Center* can be considered "*housing persons needing correctional rehabilitation*", the proposal is considered a conditionally permitted use in the Industrial Zone.

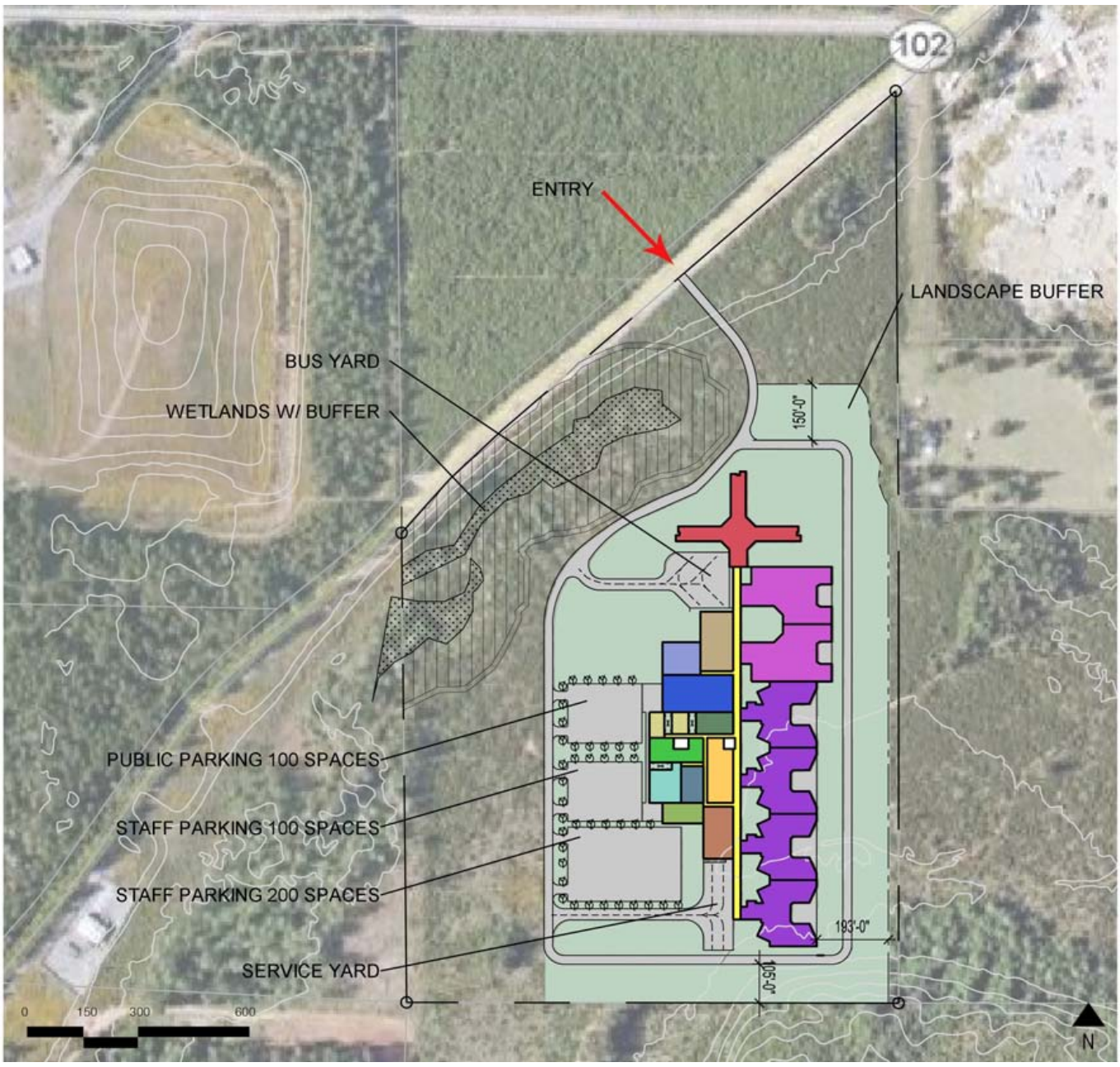
The proposed *Westside Prison Reception Center* on the Bremerton Site would be located within Zone 6 of the Bremerton National Airport. Although Zone 6 is a conceptual area with the lowest level of increased safety risk associated with aircraft operations, because a designation is assigned to this area, area within this zone is considered to have a level of increased risk. The airport indicates that "as long as the facility itself is not located along the extended runway centerline [Zone 2 or 4], it should be compatible /appropriate within this zone."[8] Within each of the six zones, WSDOT Aviation has identified the types of land use patterns that could be appropriate and, in some instances, the density of development that may be possible. In Zone 6, the guidelines indicate that correctional facilities are uses that "may be compatible with airport operations depending upon their location, size, bulk, height, density and intensity of use." DOC would coordinate with the Port of Bremerton to ensure that the proposed prison reception center design and operations were compatible with airport use and compliant with all applicable regulations (i.e., construction activities, building design and orientation, building and antenna heights, lighting).

Mason County Site Alternative

Building Complex

Location of the proposed *Westside Prison Reception Center* on the Mason County Site would occupy approximately 24 acres (approximately 48 percent of the 50 acre site) consisting of buildings, surface parking, access drives and service/bus yard. Open space/landscaping would comprise an additional 9 acres in landscaping and 10 acres in open space (approximately 38 percent of the site). In total, development of the new *Westside Prison Reception Center* at this site would result in the conversion approximately 43 acres (86 percent of the site) to a governmental/institutional use (including associated landscaping and open space). The remaining 7 acres (14 percent of the site) would remain in natural vegetation (see **Figure 2-9** for an illustration of the proposed reception center on the Mason County Site and **Figure 2-10** for a massing diagram of the proposed reception center on the Mason County Site).

[7] Bremerton Municipal Code, Chapter 20.94.030.
[8] Personal communication. August 17, 2011. Fred Salisbury, Director, Airport Operations and information obtained from Bremerton National Airport's website (http://www.airnav.com/airport/KPWT).



Source: Integrus Architecture, 2011

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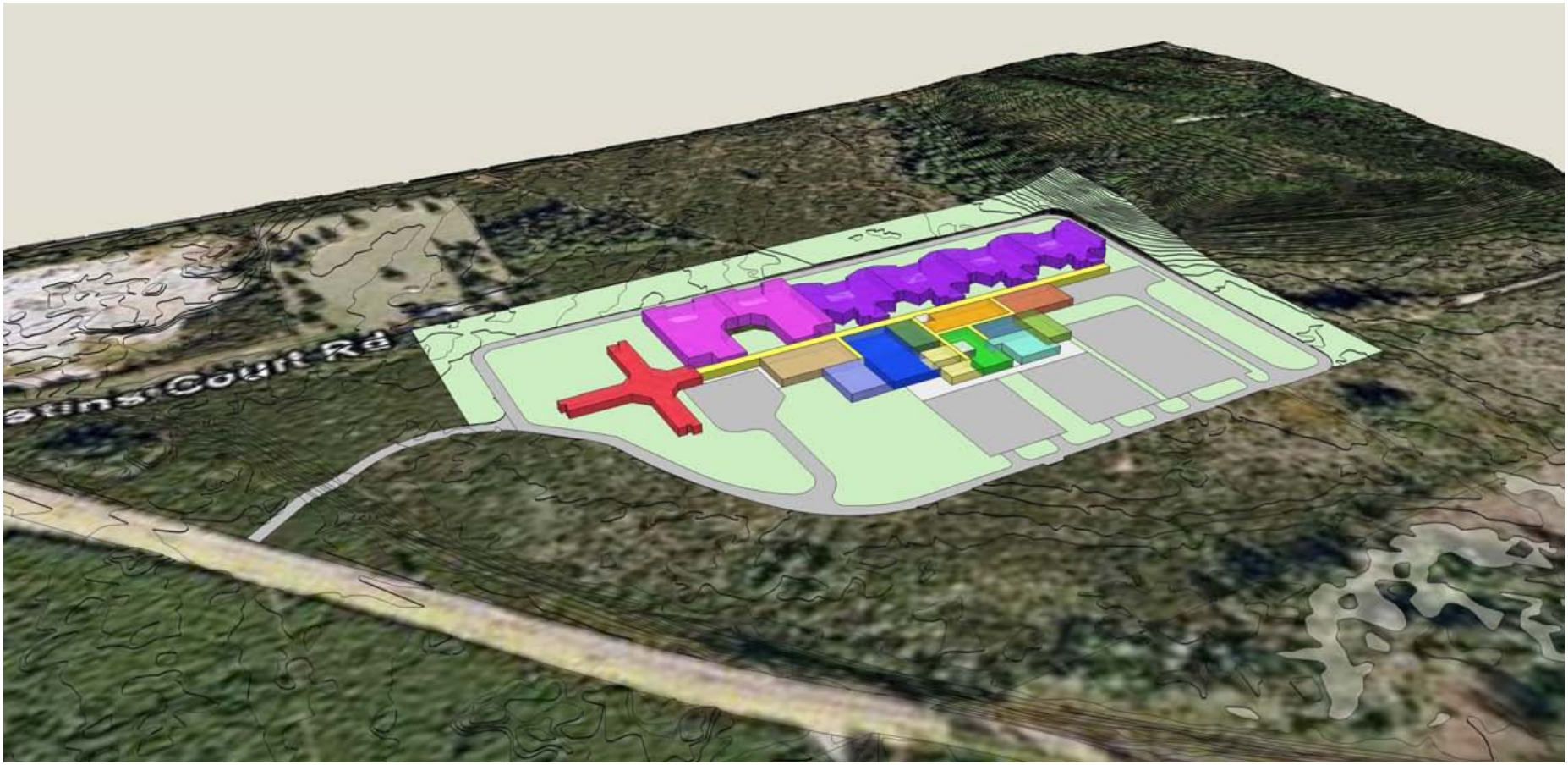
Figure 2-9
Mason County Site - Site Alternative



Source: Integrus Architecture, 2011

Figure 2-10

Mason County Site - Massing Diagram

As shown by **Figures 2-9** and **2-10**, the proposed reception center at this site would be located in the eastern portion of the site and would be oriented in a north/south direction – generally parallel with the east property line. Parking and services located outside of the secure main building would be located in proximity to Dayton Airport Road (setback approximately 700 feet from the roadway) with the secure main building behind (east). As indicated earlier in this chapter, the secure portion of the building would be two stories in height and supporting structures outside of the main building would be one-story in height. The main building would be setback approximately 500 feet from Dayton Airport Road.

Vehicular Access and Parking

One access drive would provide vehicular ingress/egress to the site from SR 102/Dayton Airport Road. As shown by **Figure 2-9**, the main access drive would be located in the central portion of the site and would provide primary access for busses, staff and visitors.

The preliminary design concept indicates that the three proposed parking lots would provide approximately 400 spaces. Staff parking would be accommodated by two lots (one with 200 spaces and a second lot with 100 spaces) and public parking would be accommodated by a 100-space lot (see **Figure 2-9**). A bus yard load/unload area and a service yard serving the warehouse would also be provided.

Street Frontage Improvements

Siting the *Westside Prison Reception Center* at this location would include roadway widening to provide minimum shoulder width.

Landscaping

As noted previously, it is anticipated that approximately 9 percent of the Mason County Site would be in landscaping. The majority of the landscaping would be provided as grass, with some trees and ornamental shrubs.

Grading

It is anticipated that approximately 120,000 cubic yards of earthwork would be required for construction of the *Westside Prison Reception Center* at this site (cut and fill would be balanced). Approximately 12,690 tons of crushed surfacing for the parking lot construction would be imported to the site.

Utilities

Water Service would be provided by the City of Shelton. Adequate public water supply and capacity (including fire flow) is anticipated to be available to serve the reception center at this site. The City of Shelton would require the DOC to construct approximately 1.2 miles of 12-inch ductile iron water main along West Dayton Airport Road (SR 102) from the Washington State Patrol (WSP) offices to the site. The public water supply line is not currently extended to the WSP offices. There are plans and designs for a two-mile water main extension to extend water to the WSP, but funds have not yet been obtained to construct this portion. DOC would be

required to fund and construct this water main extension if the current project fails to get funding (See Section 3.15, **Utilities**, for detail).

Sewer Service would be provided by the City of Shelton.
In order to provide a sanitary sewer service to this site, an 8-inch gravity main would need to be constructed onsite, as well as a pump station to connect to the existing force main located within West Dayton Road (SR 102) near the north property line. The City of Shelton would require the design of an expansion of the treatment plant if the Westside Prison Reception Center puts the treatment plant over 85 percent capacity. If other potential developments in the area, in conjuncture with this project, push the existing facility past 100% capacity, DOC then would be responsible for the cost associated with constructing the expansion and establishing a latecomer's agreement to recuperate a portion of the construction cost from new connections (see Section 3.15, **Utilities**, for detail).

Temporary and Permanent Stormwater Control systems for a reception center at this site would be designed and constructed in accordance with applicable Mason County requirements (including compliance with the 2005 DOE Stormwater Manual). With development of the site, stormwater would be controlled by a combination of open infiltration ponds, swales and possibly infiltration pipes that temporarily store stormwater while releasing to the subsurface soils. Water quality treatment would be provided by wetponds, biofiltration, media filter drains or other methods as accepted by Mason County (see Section 3.15, **Utilities**, for detail).

Land Use Code

The Mason County *Comprehensive Plan* designates the site as Forestry.

The current zoning of the site is Rural Residential 20. Among the uses listed as "Special Permit Required" in the Rural Residential 20 Zone by the Mason County Code are Essential Public Facilities. According to the Mason County Code the definition of Essential Public Facility includes "*facilities such as prisons, correctional facilities, juvenile detention centers, courthouses, ……. and hospitals*". Because the proposed *Westside Prison Reception Center* is a "correctional facility"", the proposal is considered a special permit required use in the Rural Residential 20 zone.

Development standards for the RR-20 zone limit the floor area ratio of development sites to no more than 1:20, and non-agricultural buildings are limited to 3,000 sq. ft. in size. Building heights are also limited to 35 feet, except for agricultural buildings, telecommunications towers, and water tanks. Essential public facilities and churches are allowed to exceed 3,000 sq. ft. if permitted as a Special Use. Adjustments to the floor area ratio requirement can be requested through the special use permit process and approved by the hearing examiner. Additional land is available for purchase beyond the 50 acres currently proposed, if the adjustment is denied.

Thurston County Site Alternative

As indicated earlier in this chapter, the overall Thurston County 209-acre site contains the approximately 55-acre area containing the former Maple Lane Juvenile Detention Facility; generally the developed area within the existing perimeter roadway. Site development associated with the prison reception center would occur in the approximately 55-acre area

containing the Maple Lane Juvenile Detention Facility, with the majority of the reception center uses located in the area east of the maple tree-lined main access road, although some facilities associated with the reception center would occur in the area west of the main access road (see **Figure 2-11**).

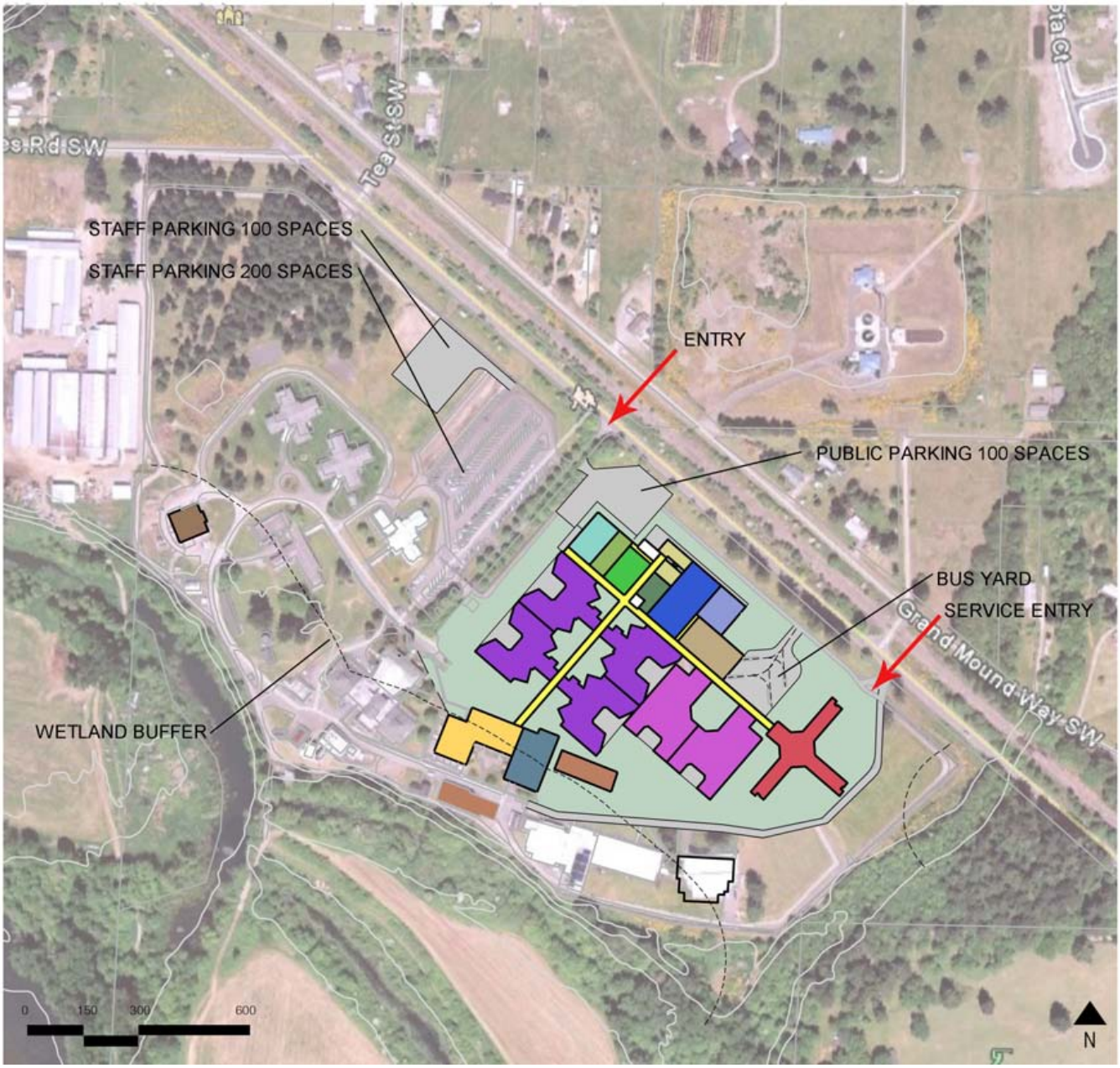
Building Complex

Location of the proposed *Westside Prison Reception Center* on the Thurston County Site would occur in the northern 55-acre portion of the site. Approximately 25 acres (approximately 12 percent of the 209 acre site) would consist of buildings, surface parking, access drives and service/bus yard. Open space/landscaping would comprise an additional 10 acres (approximately 5 percent of the site). Approximately 20 acres of the existing Maple Lane Juvenile Detention Facility would remain (primarily in the area west of the existing maple tree-lined main access road). Development of the new *Westside Prison Reception Center* at this site would result in the intensification of the existing governmental/institutional use. The 155-acre southern portion of the site (74 percent of the site) would remain in natural vegetation and agricultural use (see **Figure 2-11** for an illustration of the proposed prison reception center on the Thurston County Site and **Figure 2-12** for a massing diagram of the proposed prison reception center on the Thurston County Site).

As shown in **Figures 2-11** and **2-12**, the majority of the reception center on this site would be located east of the existing maple tree-lined main access road, including the main reception center building and surface parking accommodating 100 public parking spaces. To accommodate reception center development, demolition of certain existing buildings associated with the previous Maple Lane Juvenile Detention Facility located east of the maple tree-lined access road would be required, including demolition of the Olympic (Building 30), Rainier (Building 31), Pacific (Building 32) and Spruce (Building 7) housing buildings. See Section 3.12, **Historic Resources**, for a figure showing the existing structures on the site.

Certain existing buildings located east of the main access road would be remodeled and utilized for reception center functions, including the existing voc-tech building (Building 37) that would be utilized for maintenance functions, the existing multi-service building (Building 11) that would be utilized for food service and laundry, the new commissary building (Building 38) that would be utilized as a warehouse and, the Maintenance Building (Building 29) that would be utilized as a bus barn. In addition, the existing steam plant, associated steam tunnels and existing emergency generator building would be retained and upgraded to service new and existing buildings.

Prison reception center uses in the portion of the site west of the main access road would include use of the existing approximately 200 space surface lot, creation of a new approximately 100 space staff parking lot and use of the existing maintenance building (Building 29) for bus barn use. No existing buildings west of the main access road would be demolished.



Source: Integrus Architecture, 2011

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Figure 2-11
Thurston County Site - Site Alternative

* White buildings are existing buildings to remain

Source: Integrus Architecture, 2011

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Figure 2-12
Thurston County Site - Massing Diagram

Vehicular Access and Parking

Two access drives would provide vehicular ingress/egress to the site from Old Highway 9. As shown by **Figure 2-9**, the main access would be via the existing maple tree-lined roadway that would provide primary access for staff and visitors. A secondary access drive from Old Highway 9 would be located west of the main access and would provide access for busses and service vehicles.

The preliminary design concept indicates that the three proposed parking lots would provide approximately 400 spaces. Staff parking would be accommodated by two lots (the existing lot with 200 spaces and a new second lot with 100 spaces) and public parking would be accommodated by a 100-space lot. A bus yard load/unload area and a service yard serving the warehouse would also be provided (see **Figure 2-9**).

Street Frontage Improvements

Thurston County staff has indicated that, in consideration of the DOC granting space on the parcel (currently occupied by Maple Lane School) to Thurston County for a municipal water supply reservoir, Thurston County will assume the responsibility for building frontage improvements along Old Highway 9 for the proposed reception center. This would include upgrades or improvements to the Prairie Creek Bridge (see Section 3.13, **Transportation**, for detail).

Landscaping

As noted previously, it is anticipated that approximately 5 percent of the Thurston County Site would be in landscaping. The majority of the landscaping would be provided as grasses, with some trees and ornamental shrubs.

Grading

It is anticipated that approximately 35,000 cubic yards of earthwork would be required for construction of the *Westside Prison Reception Center* at this site. An attempt would be made to balance cut and fill. Because the amount of available construction area on this site is limited, it is possible that up to 5,000 cubic yards of soil could be transported to/from the Thurston County Site. Approximately 3,800 tons of crushed surfacing for the parking lot construction would be imported to the site.

Utilities

Water Service would be provided by the Thurston County public water supply system. While the site is currently served by existing on-site wells and tanks, Thurston County is requiring that the water service for the Westside Prison Reception Center be connected to the public water system. Water service to the site would be provided via a 1,000 foot extension of the existing 12-inch water line in Old Highway 9 from the treatment plant, as well as constructing approximately 5,600 feet of new 8-inch water main in Old Highway 9, and connecting to the existing 12-inch water main at the intersection of Old Highway 9 and Old Highway 99. (See

Section 3.15, **Utilities**, for detail). The two existing onsite wells would be decommissioned by DOC and the water rights associated with these wells would be relinquished to Thurston County.

Sewer Service would be provided by Thurston County. A new oxidation ditch would be required to accommodate the additional loading associated with the prison reception center at this site. Sewer service conveyance to the site would be provided via on-site extensions of the existing sewer system serving the site. Onsite improvements would include replacing some of the gravity mains, as well as replacing the existing grinder pumps with larger pumps, and possibly expanding the volume of the concrete waste water wet well. (see Section 3.15, **Utilities**, for detail).

Temporary and Permanent Stormwater Control systems for a reception center at this site would be designed and constructed in accordance with applicable Thurston County requirements (including compliance with the 2005 DOE Stormwater Manual). With development of the site, stormwater would be controlled by a combination of open ponds, swales and possibly infiltration pipes that would temporarily store stormwater while releasing to the subsurface soils; a portion of the existing stormwater system would be reused as an emergency overflow for the ponds. Water quality treatment would be provided by wetponds, biofiltration, media filter drains or other methods as accepted by Thurston County (see Section 3.15, **Utilities**, for detail).

Land Use Code

The Thurston County *Comprehensive Plan* designates the northern, developed portion of the site where development of the *Westside Prison Reception Center* is proposed as Planned Industrial.

The current zoning of the northern, developed portion of the site is Planned Industrial (PI). Among the special uses listed for the Planned Industrial Zone by the Thurston County Code are jails, juvenile detention facilities and secure community transition facilities (prisons are not included in the list of special uses in the PI Zone). In addition, the specific standards section of the Thurston County Code[9] provides a list of conditions for a prison related to distance from other zoning districts that do not permit prisons and distance from schools. Thus, location of the reception center at this site may require certain amendments to the Thurston County Code (refer to Section 3.8, **Relationship to Plans, Policies and Regulations**, for detail)

2.7 NO ACTION ALTERNATIVE

The *Proposed Action* is to select a site for the proposed *Westside Prison Reception Center*, acquire the property, design and permit the facility, construct the complex, and operate the facility. Three site alternatives have been identified by DOC as part of the 6-month site screening and site evaluation process. Those three site alternatives are comprehensively evaluated as part of this EIS. In addition to analysis of the site alternatives, SEPA requires evaluation of a *No Action Alternative*. The *No Action Alternative* forms the baseline for comparison between the three site development alternatives.

[9] Thurston County Code 20.54.070

The need for the proposed *Westside Prison Reception Center* is based on two factors: *1)* forecasts of a bed shortage for male offenders in Washington State by 2016; and *2)* the decision by the Washington State Legislature to close old and inefficient correctional facilities around the state.

For the proposed *Westside Prison Reception Center* EIS, it is assumed that the No Action Alternative infers that either: 1) DOC does not select a site for the proposed *Westside Prison Reception Center*; or 2) DOC selects a site, however, funding is not appropriated by the Legislature for construction and operation of the proposed *Westside Prison Reception Center.*

The following assumptions pertain to the *No Action Alternative*:

Prison Reception Center

1. The existing prison reception center that is located at Washington Correction Center in Mason County (WCC) would continue to serve as a prison reception center for western Washington.

2. With increases in the number of prisoners entering into the system in the future, the amount of space at WCC that is allocated to the reception center function would increase proportionally with increases in offender population.

3. With increases in the amount of space at WCC associated with the reception center function, either the long-term prison function at WCC would decrease proportionally with increases in the reception center function or additional long-term incarceration capabilities would be constructed to meet the projected increased demand for bed space. Such additional facilities may be constructed at WCC, existing State correctional facilities or at a new facility. Such would be the subject of a subsequent SEPA review process.

Site Alternatives

- ***Bremerton*** – This undeveloped site would be anticipated to remain undeveloped for the short-term. Re-development of the site, however, is anticipated in the long run, consistent with the type and amount of development that is envisioned as part of SKIA (industrial and manufacturing uses) and the City's *Comprehensive Plan* and consistent with associated zoning.

- ***Mason County*** – It is anticipated that this site would remain undeveloped for the short-term. Re-development could occur in the future that complies with the County's *Comprehensive Plan* and zoning. Development that is proposed for the site would be subject to the County's site-specific permit process and project-specific SEPA review process.

- ***Thurston County*** – This site is currently owned by the State of Washington. Presumably, at least for the short-term, existing buildings on-site would remain and would continue to be vacant. Conceivably, in the future the State may identify a need

and use for the site and existing facilities that are on-site. Re-use and subsequent development that occurs would be subject to the County's site-specific permit process and project-specific SEPA review process.

2.8 BENEFITS and DISADVANTAGES of DEFERRING IMPLEMENTATION of the PROPOSAL

The **Benefits** of deferring siting, construction and operation of the *Westside Prison Reception Center* on any of the three alternative sites include:

- Avoiding potential impacts from construction activities on the transportation network, air and noise quality and critical areas.
- Avoiding potential impacts from operation of a prison reception center, including public services (fire, police and schools), utility systems (water, sewer, electricity), the transportation network, and air and noise conditions.
- Avoiding potential impacts from conversion of existing sites to a prison reception center and the potential for incompatibilities with surrounding land uses.
- Other possible site alternatives may be identified at a later date.

The **Disadvantages** of deferring siting, construction and operation of the *Westside Prison Reception Center* on any of the three sites include:

- Ability to meet the future demand for prison bed space.
- Ability to improve reception center efficiency through the use of state-of-the-art technology and space design concepts.
- Ability to construct a new prison reception center in a relatively low-cost environment (deferral would likely add significantly to the capital cost if a reception center is constructed at a future date)

CHAPTER 3

Affected Environment, Significant Impacts, Mitigation Measures and Significant Unavoidable Adverse Impacts

CHAPTER 3

AFFECTED ENVIRONMENT, SIGNIFICANT IMPACTS, MITIGATION MEASURES AND SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

This chapter of the **Washington State Department of Corrections Westside Prison Reception Center Draft EIS** describes the affected environment, significant impacts, mitigation measures, and any significant unavoidable adverse impacts on the environment that could result from implementation of the Proposed Actions and alternatives. For each element of the environment, impacts are discussed for the three site alternatives (Bremerton, Mason County and Thurston County) and the No Action Alternative.

3.1 EARTH

This section describes the existing soil and geologic conditions on and in the vicinity of each of the three site alternatives. Potential impacts to these resources with construction and operation of the proposed *Westside Prison Reception Center* are also analyzed. This section is based on a geotechnical report prepared by GeoEngineers (2011) that is contained in **Appendix B** to this Draft EIS.

3.1.1 Affected Environment

This section provides a description of the existing topography, geology, soils and geologic hazards at each site. Additional information regarding groundwater is contained in Section 3.3, **Plants, Animals, Habitat, and Surface Water Resources**.

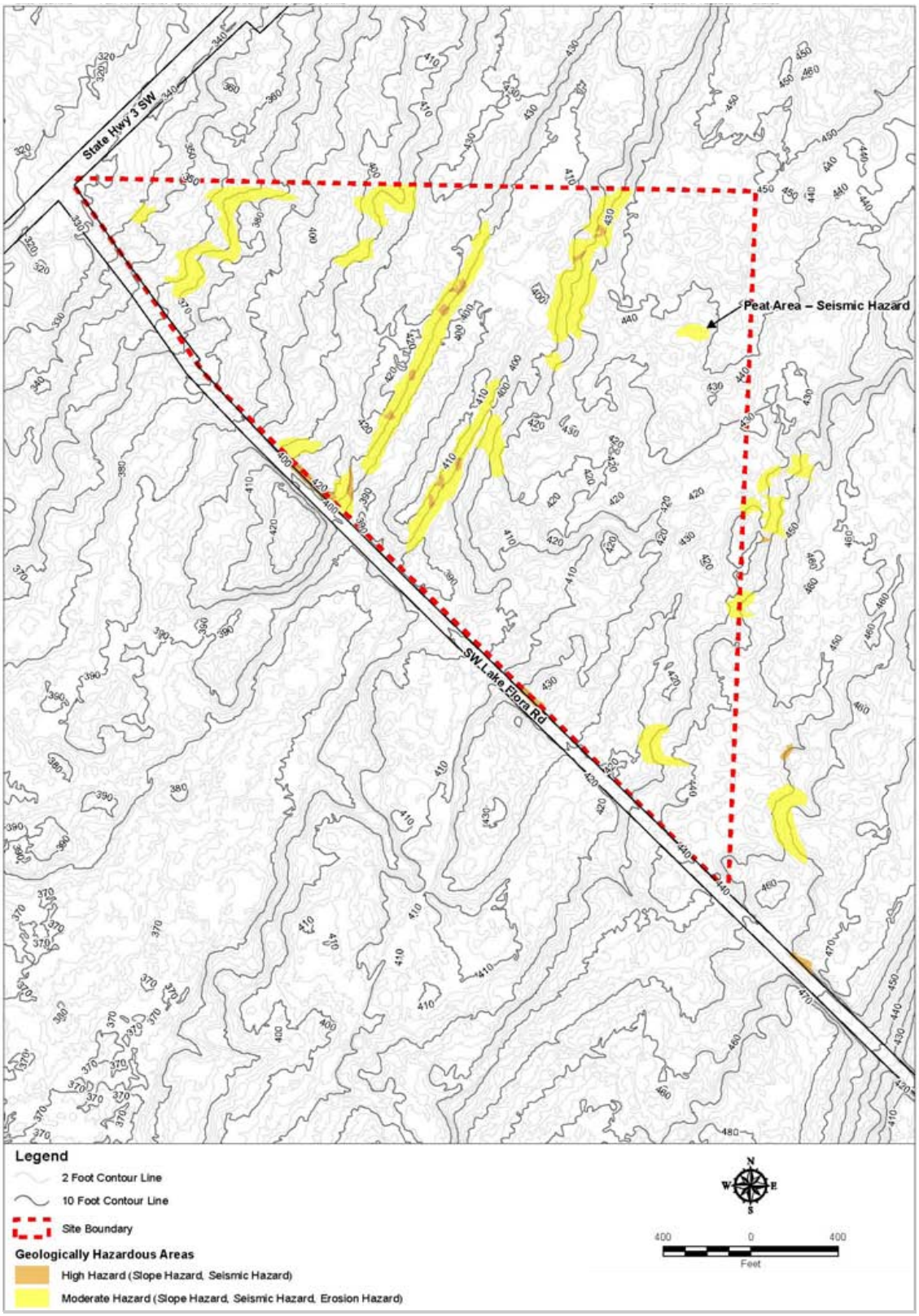
Bremerton Site

Topography

Terrain on the Bremerton Site is generally rolling with several ridges, swales and localized depressions. The ridges and swales are generally oriented in a northeast to southwest direction. Some of the swales contain wetlands and drainage channels. Elevations across the site range from approximately 460 feet near the southeast corner, to 325 feet near the northwest corner. Slope inclinations within the site are generally less than 30 percent, although localized areas of slopes greater than 30 percent exist on the flanks of some of the northeast to southwest oriented ridges that cross the site (see **Figure 3.1-1**).

Geology

Geologic conditions at the Bremerton Site are primarily the result of several regional glaciations. The most recent glaciation in the Puget Sound area was the Vashon glaciations. The nonglacial intervals preceding the Vashon glaciations were characterized by climates similar to present conditions. Erosion of previous glacial deposits and deposition of nonglacial sediments occurred during such nonglacial intervals.



Source: GeoEngineers, 2011

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Figure 3.1-1
Bremerton Site - Geologically Hazardous Areas

Deposits associated with the Vashon glaciations include advance outwash, glacial till and recessional drift. Nearly all of the site appears to be underlain at relatively shallow depths by the Vashon till – a dense, nonsorted, nonstratified glacial deposit of silt, sand, gravel, cobbles and boulders that has been compacted beneath several thousand feet of glacial ice. Based on nearby well logs, the till generally ranges in thickness from five to 40 feet or more, and overlies advance outwash or older nonglacial and glacial deposits. The till cap is apparently continuous across the site, although it appears to be mantled in places by a thin layer of recessional drift.

Undisturbed glacial till typically has high shear strength and low compressibility. It also has low permeability that renders it generally unsuitable for infiltration.

Advance outwash was deposited by meltwater streams flowing off the approaching glacier, and consists mostly of dense, stratified fine to medium sand with occasional gravel and lenses of clay and silt. The advance outwash sand is apparently not exposed within the site. It typically has high shear strength and low compressibility, and is moderately to highly permeable.

Recessional drift includes soils that were directly deposited by the melting ice (ablation drift) and soils that were deposited by meltwater steams either in direct contact with the ice (ice-contact stratified drift) or in lowlying areas freshly exposed by ice melting (recessional outwash). Recessional drift mantles the glacial till in some areas, and is most evident in cuts along the north side of SW Lake Flora Road. Typically, the recessional drift layer is about two to three feet thick where exposed. The ablation drift is similar in composition to glacial till but is less dense, while the recessional outwash generally consists of stratified deposits of sand with variable silt, gravel and cobble content. The composition of ice-contact stratified drift ranges between that of ablation drift and recessional outwash. Recessional drift generally has moderate shear strength, low to moderate compressibility, and moderate permeability.

Erosion and deposition during and following the Vashon glaciation have created the present topography. The pronounced northeast to southwest oriented ridges and swales within the site are primarily the result of ice flow. Some post glacial erosion and deposition have taken place within the site, but on a smaller scale as compared with the glacial action.

Most of the depressions and swales that exist within the site resulted from glacial erosion and deposition. Depressions and swales have served as accumulation areas for loose and soft sediments, most notably in the eastern portion of the site where there are localized depressions and channels relate to a sizable wetland located just to the northeast of the site. The soils with the highest concentrations of organic matter (peat) generally occur in depressions that contain standing water during most of the year. A small area of peat is mapped in the northeast portion of the site, and other smaller peat areas may occupy depressions, swales and drainage channels, primarily within the eastern portion of the site. Peat soils are highly compressible, and have very low shear strength, and low permeability.

Soils

The characteristics of surficial soils at any particular location are the result of the combined influence of the following five factors: (1) the parent material from which the soil was derived, (2) climate, (3) living organisms, (4) topographic effects, and (5) the length of time that the soil has been developing.

Within the Bremerton Site, as throughout most of the Puget Sound region, surficial soils have developed on materials that were deposited or exposed by erosion during or immediately following the Vashon glaciation. Since this glaciation was relatively recent, the soil-forming processes have generally not had a great impact on the characteristics of the geologic materials from which the surficial soils have been derived.

All on-site soils have been mapped by the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS, formerly known as the USDA Soil Conservation Service) as part of the Alderwood Series, which consists of moderately well drained soil formed in glacial deposits.[1] The site is mapped as Alderwood very gravelly sandy loam, with zero to six percent slopes, over the majority of the site, and Alderwood very gravelly sandy loam, with six to 15 percent slopes, in the remainder of the site. Although not mapped, localized areas of Alderwood very gravelly sandy loam, with 15 to 30 percent slopes, were identified within the site.

Shalcar muck occurs within a closed depression in the northeastern portion of the site. Other areas of Shalcar muck may occupy depressions, swales and drainage channels. The Alderwood soils are generally derived from lightly to highly consolidated glacial till, weathered glacial till and ablation drift soils. Within the Bremerton Site, a typical profile in the Alderwood soils consists of forest duff and dark brown orange silty sand about ½-foot-thick, underlain by medium dense, brown to grayish brown silty sand and sandy silt with varying amounts of gravel, cobbles and organic matter. The medium dense layer extends to depths of approximately one to four feet and overlies dense till. Permeability is moderately rapid near the surface and very low within the underlying dense till. Perched water is common above the dense till during the normally wet seasons of the year.

The Alderwood very gravelly sandy loam, zero to six percent slopes, is categorized as "Prime farmland if irrigated" by the Washington State Department of Ecology.[2]

The Shalcar muck that occurs within low lying areas in the eastern portion of the site is generally poorly drained and is composed of soft, dark brown to black peat and organic silt and clay. The peat and organic soils may range from one to three feet or more in thickness and are typically saturated and highly compressible. These soils are underlain at depth by glacial till having very low permeability. Shalcar muck is categorized as "Prime farmland if drained".[3]

Geologic Hazard Areas

Geologically Hazardous Areas are identified in the City of Bremerton's Critical Areas Ordinance (Chapter 20.14 in the City of Bremerton Municipal Code, 2011) and include areas susceptible to erosion, sliding, geologic events, landslides, and moderate and steep slope areas. Specific categories that are to be used in classifying geologically hazardous areas are as follows:

"(a) **Areas of High Geologic Hazard** are areas meeting either of the following two criteria:

> 1) Areas with slopes greater than forty percent (40%) with vertical relief of ten (10) or more feet; or:

[1] McMurphy, 1980.
[2] Ecology, 2010.
[3] Ibid.

2) Areas with slopes greater than thirty percent (30%) with vertical relief of ten (10) or more feet, and any of the following characteristics:

(i) Unstable soil or shoreline classified as "Unstable" (U), "Unstable Old Slides" (UOS), "Unstable Recent Slides" (URS), or "Intermediate" (I) by the US Department of Agriculture Soil Conservation Service, US Geologic Survey, the Washington Department of Ecology Coastal Zone Atlas, or qualified geologist or geotechnical engineer;

(ii) Groundwater seepage or springs present on the slope, areas underlain by impermeable silts or clays, or mappable emergent water;

(iii) Erosion Hazard as indicated by potential for stream or wave incision or as classified as "highly erodible" or "potentially erodible" by the Natural Resources Conservation Service.

(iv) Seismic Areas subject to liquefaction from earthquakes such as hydric soils as identified by the Natural Resources Conservation Service, and areas that have been filled to make a site more suitable.

(b) **Areas of Moderate Geologic Hazard** are any areas with slopes of thirty percent (30%) or greater and vertical relief of ten (10) or more feet, and any areas with slopes of fifteen percent (15%) to thirty percent (30%) with vertical relief of ten (10) or more feet and any of the characteristics per BMC 20.14.620(2)(i)-(iii) above. Seismic hazard areas subject to liquefaction from earthquakes, areas with hydric soils, and areas of loose fill shall be classified as Moderate Geologic Hazard Areas regardless of percent slope."

According to the Kitsap County Department of Community Development Geologically Hazardous Areas Map (2011; used also by the City of Bremerton), no Geologically Hazardous Areas are mapped within the site or in the immediate vicinity of the site.

Steep Slopes

Slope areas that are inclined between 15 to 30 percent, between 30 and 40 percent and greater than 40 percent are present on the site. However, the majority of the site has slopes that are less than 30 percent. Some localized slopes steeper than 30 percent exist along the flanks of low ridges that extend northeast to southwest across the central portion of the site. There are also minor areas where slopes exceed 40 percent; these are associated with cuts made along Lake Flora Road and along logging roads within the site.

The 30 to 40 percent slopes and the slopes greater than 40 percent are generally less than 10 feet in vertical height. However, a few localized areas where slopes exceed 40 percent and are 10 feet or greater in vertical height meet the criteria for High Hazard Areas, and a few slopes exceeding 30 percent and 10 feet or greater in vertical height meet the criteria for Moderate Hazard Areas. These areas are concentrated along the flanks of the ridges that extend across the site, and also locally in cuts made for logging roads and SW Lake Flora Road (see **Figure 3.1-1**). While these areas meet the criteria for Geologically Hazardous Areas in the Bremerton Critical Areas Ordinance, they are not officially mapped or identified as such; mapping of these areas was completed for this DEIS by GeoEngineers.

Landslide Hazards

Landsliding is the slow to rapid downslope movement of a mass that includes rock, soil and/or vegetative cover. The movement may occur as planar slides, block slides, rotational slumps, debris avalanches and mudflows. Landsliding usually occurs on steep slopes and is commonly initiated during periods of intense or prolonged rainfall when the groundwater level is high. Landsliding can also be initiated by removing lateral support from the toe of a slope or by overloading the slope with fill soil or water.

There are relatively few areas within the Bremerton Site that slope more steeply than 30 percent and have a vertical height of 10 feet or greater. Slopes within the site are generally underlain by stable, dense glacial till or other drift, and are of limited vertical height and areal extent. Based on observations, geologic conditions in the more steeply sloping areas within the site generally would not meet the City of Bremerton criteria for landslide hazard areas, except during strong ground shaking, as discussed below.

Seismic Hazards

The Puget Sound area is a seismically active region that has experienced thousands of earthquakes in historical time. Seismic hazards represent risk of injury or damage to humans and property resulting directly from earthquakes. Seismic hazards include surface fault rupture, ground shaking and associated ground failure such as liquefaction and landsliding. Based on review of published geologic information, no faults have been mapped in the immediate vicinity of the site. The closest mapped fault (the Seattle Fault Zone) is located approximately five miles to the north of the site. This fault zone extends in an east-west direction through the Bremerton area and is thought to be capable of generating a magnitude 7.5 earthquake.[4]

Another fault zone, the east-west trending Tacoma Fault Zone, has been mapped approximately six miles south of the site.[5] This fault zone is thought to be capable of generating a magnitude 7 earthquake.[6]

The strength of ground shaking at any particular location is related in part to the underlying soil and rock conditions. Ground shaking in areas of soft soils is generally stronger than in areas of dense or stiff soils, or shallow bedrock. Simplified site soil classes have been developed for evaluating design ground motions.[7] Based on site soil properties, sites are classified as either Site Class A, B, C, D, E, or F. Site Class A corresponds to hard rock, while Site Class F corresponds to weak, soft or potentially liquefiable soils.

Based on Site Class mapping consistent with the IBC for each county within Washington State, nearly the entire project site is mapped as Site Class C (very dense soil and soft rock).[8] The area underlain by peat in the northeastern portion of the site is likely categorized as Site Class F and is also classified as a Moderate Geologically Hazardous Area (see **Figure 3.1-1**). As mentioned previously, this area meets the criteria for Geologically Hazardous Areas in the Bremerton Critical Areas Ordinance, but is not officially mapped or identified as such.

[4] Ten Brink, et al., 2002.
[5] US Geologic Survey, 2011.
[6] Sherrod, et al., 2004.
[7] International Building Council, 2009.
[8] Palmer et al., 2004.

Liquefaction is the loss of strength by loose, saturated, primarily granular soils when subjected to vibration or shaking. Peat soils are not considered to be susceptible to liquefaction but are often included with areas mapped as being liquefiable because of similar seismic response characteristics (permanent displacement or loss of strength as a result of ground shaking). Within the Bremerton Site, the peat area mapped in the northeast portion of the site (see **Figure 3.1-1**) falls under this category. All other areas within the site are mapped as having a very low susceptibility to liquefaction.[9]

Localized areas of shallow sloughing of loose soils triggered by strong ground shaking could occur on slopes steeper than 30 and steeper than 40 percent and having a vertical height of 10 feet or greater. These areas are included as Moderate and High Geologic Hazard areas, as shown in **Figure 3.1-1**, and are associated with the flanks of the northeast-southwest trending ridges that extend across the central portion of the site, and also with cuts for logging roads and SW Lake Flora Road.

As mentioned above, these areas meet the criteria for Geologically Hazardous Areas in the Bremerton Critical Areas Ordinance, but are not officially mapped or identified as such.

Erosion Hazards

Erosion of soils is a natural, ongoing physical process by which sediment is removed from topographic high points and transported down slope by a variety of geomorphic processes. These include the slow process of soil creep, and more rapid processes of sheet wash, slope ravel, and rill and gully erosion. Erosional processes may be accelerated during construction by removing vegetation and exposing native soils. Some soils are particularly susceptible to erosion because of their smaller particle size and lower density.

The Alderwood very gravelly sandy loam, zero to six percent slopes, and six to 15 percent slopes on the site are both considered to have "slight erosion hazard".[10] Alderwood very gravelly sandy loam, 15 to 30 percent slopes, has a "moderate erosion hazard" classification. Based on the definition of Erosion Hazard Areas in the Bremerton Critical Areas Ordinance, site slopes between 15 and 30 percent and having a vertical height of 10 feet or greater are considered Moderate Geologically Hazardous Areas, and slopes exceeding 30 percent with a vertical height of 10 feet or greater are considered as High Geologically Hazardous Areas, as shown in **Figure 3.1-1**. These areas are associated with the flanks of the northeast-southwest trending ridges that extend across the central portion of the site, and also with cuts for logging roads and SW Lake Flora Road.

As mentioned above, these areas meet the criteria for Geologically Hazardous Areas in the Bremerton Critical Areas Ordinance, but are not officially mapped or identified as such by the City of Bremerton.

[9] Palmer, et al., 2004.
[10] McMurphy,1980.

Groundwater

Aquifer Systems

There are two distinct aquifer systems beneath the Bremerton Site. These include: (1) a shallow aquifer within the recessional drift soils overlying the relatively impermeable glacial till cap, and (2) a deeper aquifer within the advance outwash that underlies the till. Other aquifers may underlie the advance outwash aquifer. Each aquifer system is controlled, to a large extent, by the presence of underlying soils of relatively low permeability.

The surficial aquifer is a relatively thin zone of seasonally saturated soil (perched groundwater zone) overlying the glacial till that underlies the site. The thickness of the saturated zone, where present, fluctuates seasonally. Recharge to the surficial aquifer originates from precipitation that falls on the site and in the site vicinity. Groundwater flow within these shallow perched zones mimics surface topography and extends in down slope directions toward wetland areas and drainage channels. Shallow groundwater in the northwestern portion of the site generally flows to the northwest. Shallow groundwater in the remainder of the site generally flows to the southwest.

A portion of the shallow groundwater at the site also migrates downward and provides recharge to the deeper advance outwash and lower aquifers. This applies particularly to closed depressions such as the peat area mapped in the northeastern portion of the site. Downward percolation of water is impeded by the glacial till that is present across the site.

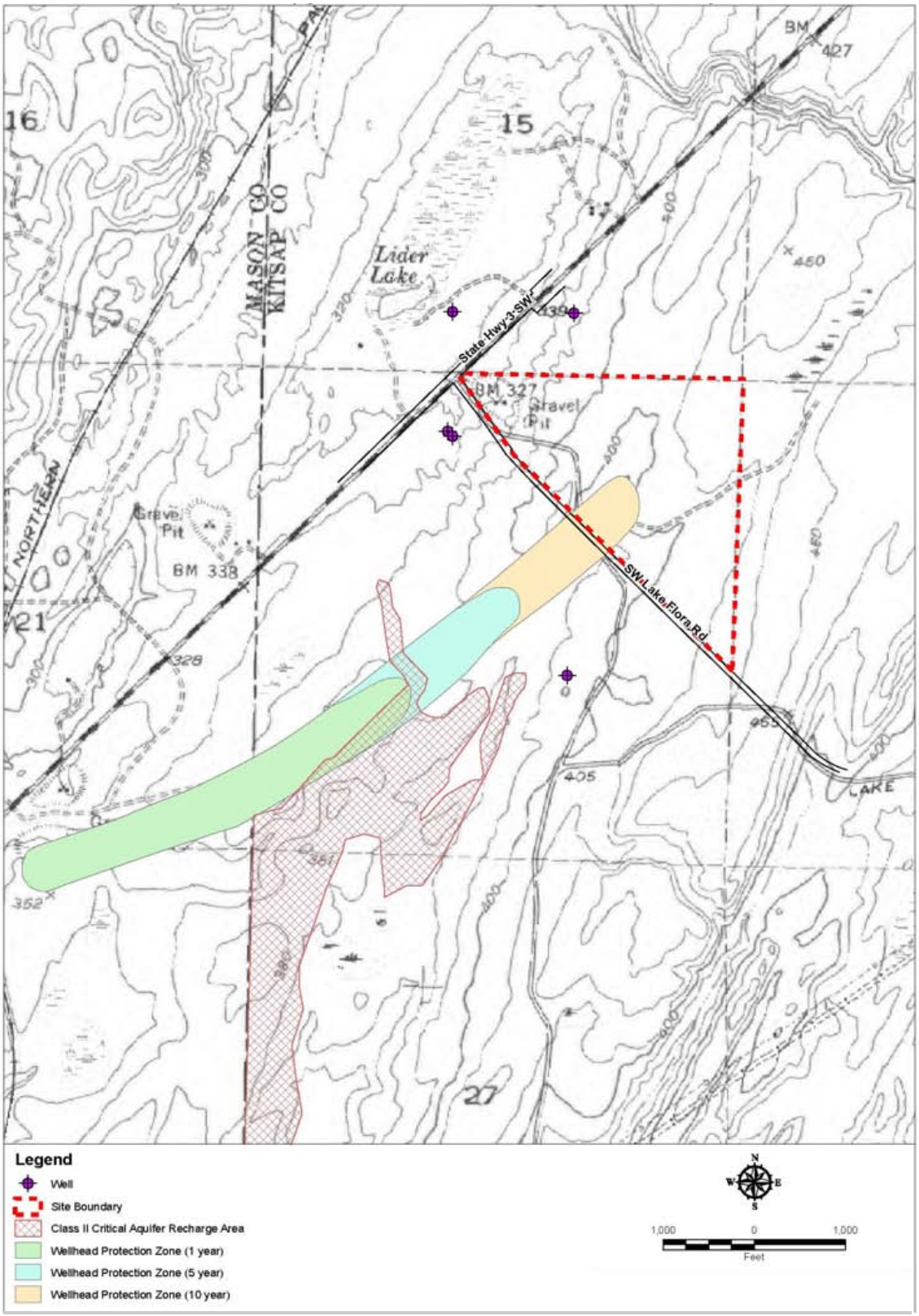
The deeper advance outwash aquifer, which is the source of water for several domestic wells in the site vicinity, is largely unconfined, as unsaturated zones exist between the base of the overlying till and water levels indicated on the well logs. Static ground water elevations within the advance outwash are typically 55 to 75 feet below the existing ground surface. Groundwater within the advance outwash likely flows to the northwest in the northwestern portion of the site, and to the south and southeast in the remainder of the site.

Water Well Data

A review of records on file with the Washington State Department of Ecology indicates there are five existing water wells located within 0.25 mile of the Bremerton Site. See **Figure 3.1-2** for the approximate locations of these wells. Information on groundwater quality was not included on the well logs.

Critical Aquifer Recharge and Wellhead Protection Areas

Critical Aquifer Recharge Areas (CARAs), as defined in the Bremerton Municipal Code (2011), are “those land areas that contain hydrogeologic conditions that facilitate aquifer recharge and/or transmission of contaminants to an underlying aquifer” (Section 20.14.420). CARAs are classified as either Category I or II. Category I CARAs are those areas where the potential for certain land use activities to adversely affect groundwater is high. Category I CARAs include areas inside the 5-year travel time zone for Group A water system wells, calculated in accordance with the Washington State Wellhead Protection Program. They also include areas inside the ten-year time of travel zones in wellhead protection areas when the well draws its



Source: GeoEngineers, 2011

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Figure 3.1-2

Bremerton Site - Wellhead Protection Zones & CARA

water from an aquifer that is at or above sea level and is without an underlying protective impermeable layer.

Category II CARAs are areas that provide recharge to aquifers that are current or potentially will become potable water supplies and are vulnerable to contamination based on the type of land use activity. Category II CARAs include highly permeable soils as identified in the Soil Survey of Kitsap County.[11]

According to the Kitsap County Department of Community Development (2011), Category II CARAs are mapped about a 0.5 mile to the southwest of the site. This designation likely results from the presence of mapped highly permeable soils. No Category I or II CARAs are mapped within the project site.

Wellhead protection zones associated with a regional water supply well, the Belfair Water District Well 4 (located about 1.3 mile west of the site and within adjacent Mason County), extend northeast toward the site (wellhead protection zones are defined as areas around a well that are regulated to prevent contamination of a potable water source); the areas of potential contamination are defined as areas where contaminants are reasonably likely to reach a designated well within one, five or ten years).[12] The 10-year time of travel zone for this well extends partly into the southern portion of the site, as shown in **Figure 3.1-2**. However, because there is a near-surface, low permeability layer (glacial till) underlying the site, this wellhead protection zone would not technically meet the requirements of a Category I CARA.

Mason County Site

Topography

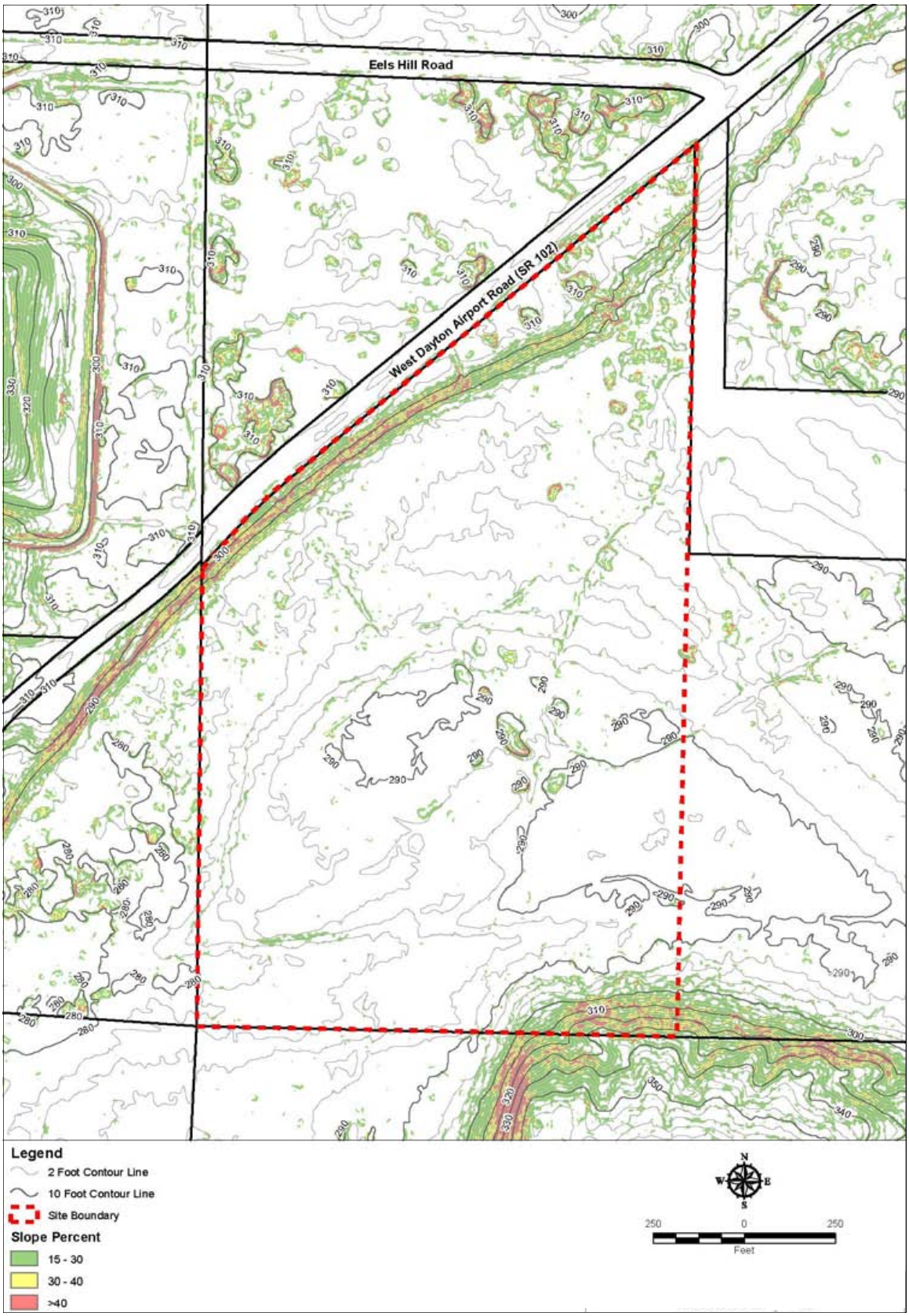
Terrain on the Mason County Site is generally level to gently rolling, except along the northwest margin and near the southeast corner of the site. A steep slope parallels SR 102/West Dayton Airport Road and extends along the entire northwest side of the site. The lower portion of a prominent hill extends partly into the southeast portion of the site.

Elevations across the site range from approximately 280 feet near the southwest corner to approximately 335 feet near the southeast corner. The elevation of the steep slope along SR 102/West Dayton Airport Road is approximately 305 feet, and the slope has a maximum height of about 25 feet with a 15 to 40 percent incline. The hillside in the southeast portion of the site is also inclined approximately 15 to 40 percent. See **Figure 3.1-3** for existing topography and slope conditions on the site.

Geology

Near-surface geologic conditions at the Mason County Site are primarily the result of the most recent glaciation in the Puget Sound region, the Vashon glaciation. Deposits associated with the Vashon glaciation at the site include recessional outwash and glacial till.

[11] McMurphy, 1980.
[12] Robinson & Noble, 2001; Washington State Department of Health, 2011.



Source: GeoEngineers, 2011

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Figure 3.1-3
Mason County Site - Topography and Slopes

Recessional outwash includes soils that were deposited in lowlying areas and channels freshly exposed by ice melting. It also includes soils that were deposited by meltwater streams in direct contact with the ice (ice-contact stratified drift). The outwash typically consists of sand and gravel with varying silt content, cobbles and boulders. It is typically in a medium dense condition. The higher terrain along and north of West Dayton Airport Road is a terrace underlain by ice-contact stratified drift, while the lower terrain within the majority of the site is apparently a meltwater channel filled in with recessional outwash deposits.

Based on nearby explorations, the thickness of the ice-contact stratified drift underlying the higher terrace northwest of the site is at least 40 feet. The thickness of the recessional outwash in the lower lying portion of the project site is uncertain, but nearby well logs indicate that that the outwash could be 5 to 10 feet thick.

Recessional outwash generally has moderate to high shear strength, low to moderate compressibility, and moderate to high permeability.

The Vashon glacial till underlying the recessional outwash soils and at shallow depth in the hillside along the southeast portion of the site is a dense, nonsorted nonstratified deposit of silt, sand, gravel and cobbles and boulders that has been compacted beneath several thousand feet of glacial ice.

Undisturbed glacial till typically has high shear strength and low compressibility. It also has low permeability that renders it generally unsuitable for infiltration.

Nearby well logs indicate that the glacial till is underlain at depth by advance outwash deposits consisting of dense, stratified sand with gravel and layers of silt and clay. The advance outwash sand is apparently not exposed within the site. Advance outwatsh deposits typically have high shear strength and low compressibility, and is moderately to highly permeable.

Soils

The near-surface soils within the Mason County Site have developed on recessional outwash or glacial till deposits. The predominant soil series mapped within the site include the Lystair, Grove and Shelton series.[13]

The Lystair and Grove soils are derived from granular recessional outwash deposits, and the Shelton series is derived from glacial till. The northeastern portion of the site is mapped as Lystair loamy sand, zero to five percent slopes. The majority of the site is mapped as Grove gravelly sandy loam, zero to five percent slopes, while the southeastern portion of the site is mapped as Shelton gravelly sandy loam, five to 15 percent slopes. Although not mapped by the NRCS, there are soils in the steep slope along the northwest edge of the site that classify as Grove gravelly sandy loam, 15 to 30 percent slopes, and 30 to 45 percent slopes.

The Lystair soils typically consist of forest duff and organic soils with a thickness of up to ½ foot, underlain by orange brown and yellowish brown, medium dense sand with occasional gravel.

[13] Ness and Fowler, 1960.

The permeability of the soil is high. Lystair loamy sand, zero to five percent slopes, is categorized as "Prime farmland if irrigated".[14]

The Grove soils typically consist of 0.5 foot of forest duff and organic soil, underlain by orange brown, loose sand and gravel grading to yellowish brown medium dense below about two feet. The soil is highly permeable. Grove gravelly sandy loam, zero to five percent slopes, is categorized as "Prime farmland if irrigated".[15]

The Shelton soils have a typical profile of forest duff and organic soils about 0.5 foot thick, underlain by medium dense orange brown silty sand with varying amounts of gravel. The medium dense layer extends to depths of about two to three feet and overlies brownish gray, dense glacial till. Permeability is moderate near the surface and very low within the underlying dense till. Perched water is common above the dense till during the normally wet seasons of the year.

Geologic Hazard Areas

Mason County identifies geologic hazard areas (landslide hazard areas, seismic hazard areas and erosion hazard areas) in Resource Ordinance No. 77-93, Section 17.01. Geologic hazard areas that are present on the Mason County Site are described below.

Landslide Hazard Areas

Per Section 17.01, of the Resource Ordinance, landslide hazards are defined as follows:

a. "Areas with any indications of earth movement such as debris slides, earthflows, slumps and rock falls.

b. Areas with artificial oversteepened or unengineered slopes, i.e., cuts or fills.

c. Areas with slopes containing soft or potentially liquefiable soils.

d. Areas oversteepened or otherwise unstable as a result of stream incision, stream bank erosion, and undercutting by wave action.

e. Slopes greater than 15 percent (8.5 degrees) and having the following:

   - Hillsides intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock (e.g., sand overlying clay); and
   - Springs or groundwater seepage.

f. Any area with a slope of forty percent or steeper and with a vertical relief of 10 or more feet except areas composed of consolidated rock. A slope is delineated by establishing its toe and top and measured by averaging the inclination over at least ten feet of vertical relief."

Areas within the site that meet the above identified criteria for landslide hazard areas include those areas with slopes of 40 percent or steeper and having a vertical height of 10 feet or greater, including slopes in the southeast and north portion of the site (see **Figure 3.1-3**).

[14] Ecology, 2010.
[15] Ibid.

Seismic Hazard Areas

Per Section 17.01.102 of the Mason County Resource Ordinance, types of seismic hazards include: surface faulting, ground shaking, earthquake-related ground failure and landslides, lateral spreading, liquefaction, lurch cracks, rockfalls, differential settlement, regional uplift, seiches, and/or tsunamis.

Hazard classification is as follows:

"Areas susceptible to ground failure including the following:

a. Areas with geologic faults;
b. Deep road fills and areas of poorly compacted fill;
c. Areas with artificially oversteepened slopes;
d. Postglacial stream, lake or beach sediments;
e. River deltas;
f. Areas designated as potential Landslide Hazard Areas;
g. Bluff areas; and
h. Areas underlain by potentially liquefiable soils."

Review of published geologic information indicates that no faults have been mapped in the immediate vicinity of the site.[16] The closest mapped fault (the Hood Canal Fault Zone) is located approximately eight miles to the north. This apparent fault zone extends in a northeast-southwest direction under Hood Canal. However, recent mapping "found no convincing evidence for the existence of this fault."[17]

A postulated fault, the northwest to southeast trending Olympia Structure, has been mapped approximately two miles east of the site.[18] However, there is disagreement in the geologic literature about whether the structure is actually a fault.

The strength of ground shaking at the site is related in part to the predominant soil types that underlie the site. Based on Site Class mapping for Mason County, nearly the entire Mason County Site is mapped as IBC Site Class C to D (very dense soil and soft rock, to stiff soil).[19] The southeastern portion of the site coinciding with the hillside underlain by glacial till is mapped as Site Class C (very dense soil and soft rock).

The entire site is mapped as having very low susceptibility to liquefaction.[20]

Landslide hazard areas associated with ground shaking correlate with those areas previously identified as landslide hazard areas, including the slopes in the southeast and north portion of the site. See **Figure 3.1-3** for reference.

[16] U.S. Geologic Survey, 2011.
[17] Contreras, et al, 2010.
[18] Gower et al. (1985).
[19] Palmer et al, 2004.
[20] Ibid.

Erosion Hazard Areas

Per Section 17.01.104 of the Mason County Resource Ordinance, Erosion Hazard Areas are "areas in Mason County underlain by soils which are subject to severe erosion when disturbed. Such soils include, but are not limited to, those for which potential for erosion is identified in the Soil Survey of Mason County, USDA Soil Conservation Service, 1960, or any subsequent revisions or additions to this source. There soils include, but are not limited to, any occurrence of River Wash ('Ra') or Coastal Beaches ('Cg') and the following when they occur on slopes 15 percent or steeper:

a. Alderwood gravelly sandy loam ('Ac' and "Ad')
b. Cloquallum silt loam ('Cd')
c. Harstine gravelly sandy loam ('Hb')
d. Kitsap silt loam ('Kc')"

According to the above identified criteria, the slopes inclined at 15 percent or steeper along the northwestern site border and within the southeastern portion of the site are considered erosion hazard areas (see **Figure 3.1-3**).

Groundwater

Aquifer Systems

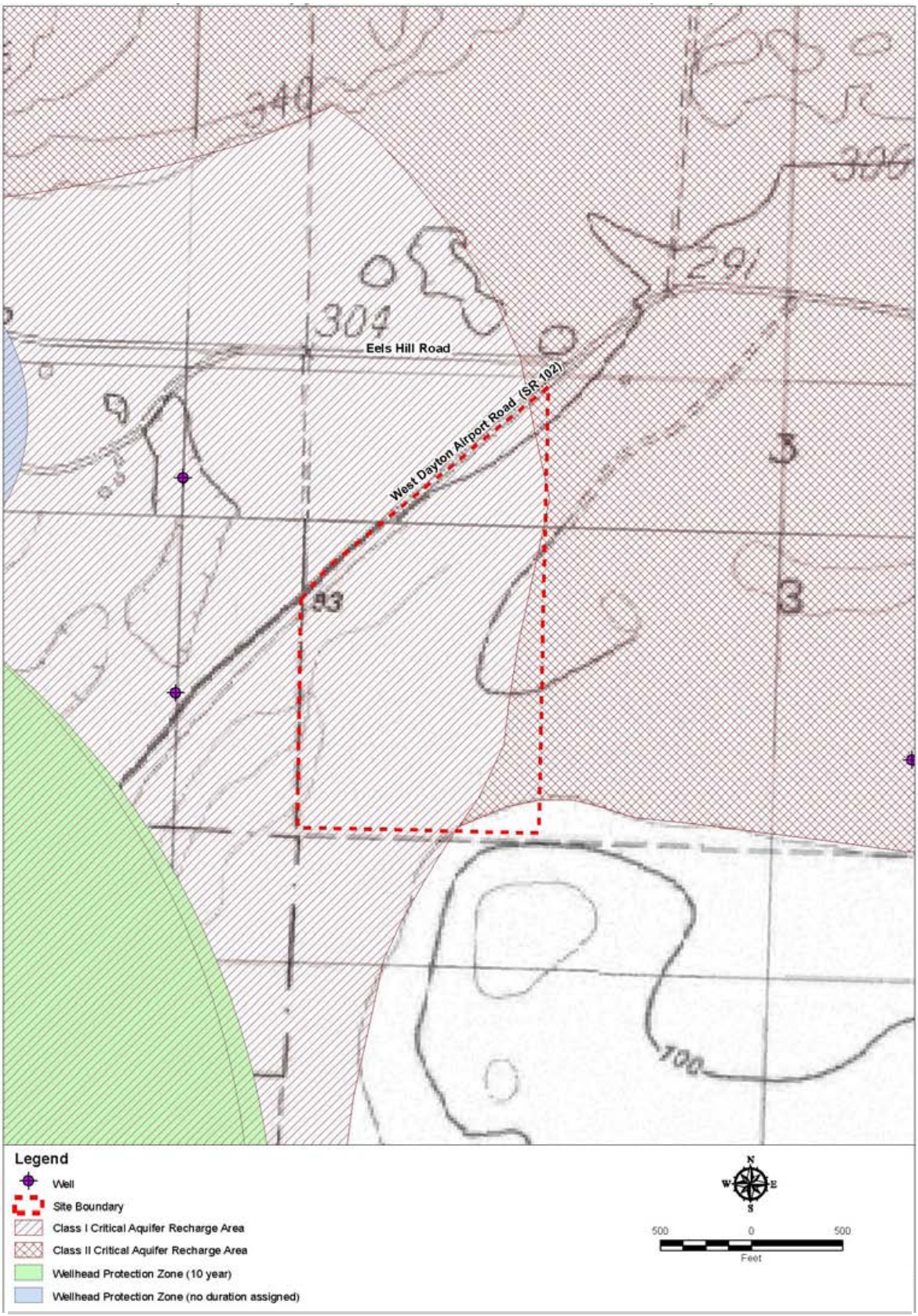
There are at least two distinct aquifer systems beneath the Mason County Site. These include: 1) a shallow aquifer within the recessional outwash soils overlying relatively impermeable soils such as glacial till, and 2) a deeper aquifer within the advance outwash sand and other permeable soils that underlie the till. Other aquifers may underlie the advance outwash aquifer. Each aquifer system is controlled to a large extent by the presence of underlying soils of relatively low permeability.

Due to the lack of available subsurface information for the site, the exact thickness of the shallow aquifer is unknown. Nearby well logs indicate the recessional outwash in the low lying central portion of the site could be 5 to 10 feet thick. The depth to groundwater is also unknown. The thickness of the saturated zone, where present, fluctuates seasonally in response to variations in precipitation. Shallow groundwater within the recessional outwash likely flows to the southwest, following the general orientation of the ground surface.

Some shallow groundwater within the recessional outwash likely migrates downward through the underlying till, although at a relatively slow rate. The downward flow provides recharge to the underlying aquifer(s).

Water Well Data

A review of records on file with the Washington State Department of Ecology indicates there are three existing water wells located within ¼ mile of the Mason County Site. See **Figure 3.1-4** for the approximate locations of these wells.



Source: Name, 2011

Figure 3.1-4
Mason County Site - CARA's & Wellhead Protection Zones

Critical Aquifer Recharge and Wellhead Protection Areas

CARAs within Mason County are classified according to the criteria provided in Mason County Resource Ordinance 17.01.080, CARAs.[21] These are areas which are "determined to have an important recharging effect on aquifers used as a source for potable water and vulnerable to contamination from recharge." The Ordinance further classifies CARAs as follows:

a. Class I (Extremely Susceptible). Areas designated as Class I demonstrate hydrogeologic characteristics that allow for an extremely high susceptibility of an underground source of drinking water. These areas are identified as recessional outwash of thickness greater than 25 feet.

b. Class II (Highly Susceptible). Areas designated as Class II demonstrate hydrogeologic characteristics that allow for a high susceptibility of an underground source of drinking water. These areas are identified as recessional outwash and alluvium of thickness 25 feet or less in thickness. Depth to water is generally 25 to 125 feet below land surface.

c. Class III (Moderately Susceptible). Areas designated as Class III demonstrate hydrogeologic characteristics that allow for a moderate susceptibility of an underground source of drinking water. These areas are identified as advance outwash. Depth to water is greater than 125 feet below land surface. Class III areas include those well head protection areas, not otherwise designated as a Class I, II, or III critical recharge area, and recorded with the Mason County Department of Community Development.

d. Class IV (Low Susceptibility). Areas designated as Class IV demonstrate hydrogeologic characteristics that allow for a low susceptibility of an underground source of drinking water.

Based on the Mason County CARAs Map and review of available hydrogelogic information, the entire site is a Class I CARA (see **Figure 3.1-4**)

There are no known wellhead protection zones in the vicinity of the site.

Thurston County Site

Topography

The developed portion of the Thurston County Site (i.e. the 55-acre portion of the total 209-acre site) is located on a nearly level terrace above the Chehalis River floodplain. The southwestern side of the site slopes steeply down over a vertical height of about 20 feet to the level of the floodplain. Steep slopes less than 20 feet in vertical height are also present along the southeast side of the site, adjacent to Prairie Creek.

Elevations across the currently developed portion of the site are at or close to an elevation of 160 feet. The river floodplain south and west of the developed portion of the site is at an elevation of approximately 140 feet.

[21] Mason County, 2009.

There are two artificial depressions within the developed portion of the site that are used for infiltration of stormwater. One is a pond located in the northwest portion of the developed portion of the site with a depth of about 10 feet and the other is a swale about 300 feet long and several feet deep that parallels the northwest edge of the main parking lot. Stormwater does not typically pond in these depressions, which infiltrate water rapidly.

An unpaved road extends from the southwest corner of the site down to the level of the Chehalis River flood plain. A cut slope adjacent to this road is inclined at about 40 percent. The road was used in the past to access a former sewage lagoon that was located on the floodplain. The sewage lagoon was filled in approximately 10 years ago.

See **Figure 3.1-5** for the site topography.

Geology

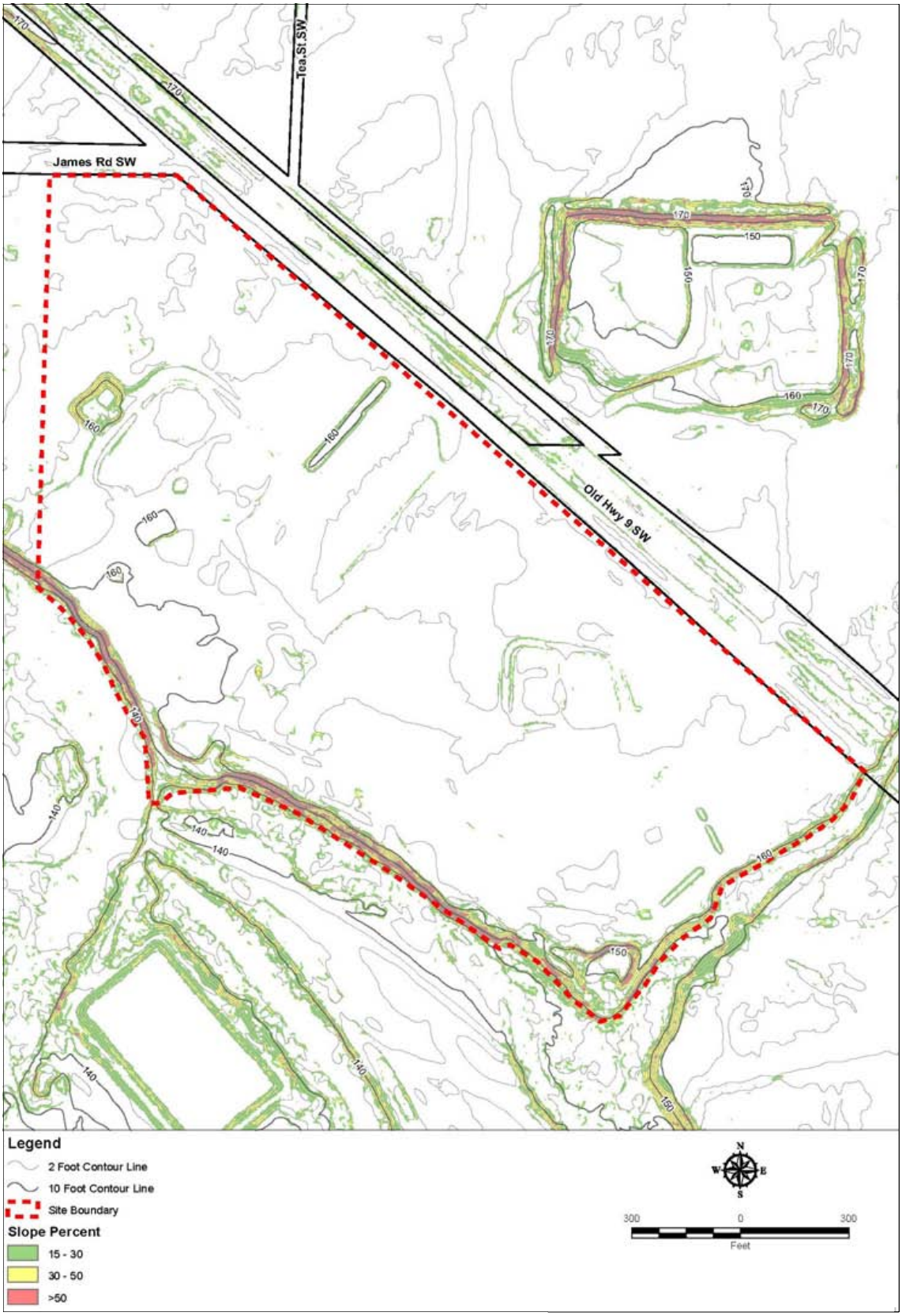
The near-surface geologic conditions in the developed portion of the Thurston County Site are primarily the result of the most recent glaciation in the Puget Sound region, the Vashon glaciation. During the close of this last glaciation, meltwater streams flowing from the ice deposited sand and gravel over large areas in southern Thurston County, resulting in the formation of outwash plains such as the level prairies in the Grand Mound area. The project site is located on the edge of an outwash terrace that may have marked the southernmost extent of the glacial ice.[22] Prairie Creek later became incised in the terrace deposits. The Chehalis River eroded and deposited material to form the floodplain in the southern undeveloped portion of the site.

The recessional outwash at the developed portion of the site typically consists of sand and gravel with varying silt content, cobbles and boulders. It is typically in a medium dense condition. Based on nearby well logs, there are also lenses and layers of silty sand and silt with gravel included within the recessional outwash. The thickness of the recessional outwash underlying the terrace apparently exceeds 60 feet. The recessional outwash is overlain by up to three feet of topsoil and silty sand with gravel and organic matter.

Recessional outwash soils generally have moderate to high shear strength, low to moderate compressibility and moderate to high permeability.

Floodplain deposits consisting of sand, silty sand, silt and clay with varying amounts of organic matter in the upper few feet occur in the Chehalis River floodplain in the southern undeveloped portion of the site. These deposits are younger than the recessional outwash deposits that underlie the floodplain.

[22] Logan, 1987.



Source: GeoEngineers, 2011

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Figure 3.1-5
Thurston County Site - Topography and Slopes

Soils

The near surface soils within the Thurston County Site have developed on recessional outwash deposits. The predominant soil series mapped within the site is the Spanaway gravelly sandy loam.[23]

The Spanaway series is derived from granular recessional outwash deposits. The site is mapped as Spanaway gravelly sandy loam, zero to five percent slopes. Although not mapped, the soils in the steep slopes along the southwestern and southeastern margins of the currently developed portion of the site would classify as Spanaway gravelly sandy loam, five to 15 percent slopes. Slopes exceeding 15 percent exist in these areas, but the NRCS does not include a classification for Spanaway series soils for such slopes.

The Spanaway gravely sandy loam, zero to five percent slopes, and five to 15 percent slopes, typically consists of surface layers of forest duff or topsoil about ½ foot thick over dark brown silty gravel and sand to depths of up to three feet. The underlying soil consists of light brown, medium dense gravel and sand with cobbles. The permeability of the upper silty gravel and sand layer is moderately rapid, while the permeability in the underlying gravel and sand is very rapid.

The Spanaway gravely sandy loam, zero to five percent slopes, is categorized as "Prime farmland if irrigated".[24]

Geologic Hazard Areas

The Thurston County Critical Areas Ordinance is in the process of being updated as of July 2011. A draft version of the update to the Geologically Hazardous Areas portion of the ordinance is in progress.[25] The current version of the Geologically Hazardous Areas was put into effect in the mid 1990s. Pertinent definitions in the current version of the ordinance (Section 17.15.200) are described further below, and geological hazard areas on the site, if present, are identified.

Steep Slope Areas

Section 17.15.200 of the Thurston County Critical Areas Ordinance defines a steep slope as: "…an area which is equal to or in excess of fifty percent slope and where there is a break of more than fifteen feet, or where the ground surface rises twelve and one-half feet or more vertically within a horizontal distance of twenty-five feet. This can also include a slope of thirty [to] forty-nine and nine-tenths percent which is defined as a 'landslide hazard area."

The developed portion of the site has slopes that are less than five percent. Steep slopes that locally exceed 40 percent are located along the southern and eastern margins of the currently developed portion of the site. These slopes are on the order of 15 to 20 feet in vertical height (see **Figure 3.1-5**).

[23] Pringle,1990.
[24] Ecology, 2010.
[25] Thurston County Planning Department, 2011.

Landslide Hazard Areas

Section 17.15.200 of the Thurston County Critical Areas Ordinance defines landslide hazard areas as: "…those areas which are potentially subject to risk of mass movement due to a combination of geologic, topographic, and hydrologic factors; and where the vertical height is fifteen or more. The following areas are considered to be subject to landslide hazards:

1. Any area with a combination of:

   a. Slopes of thirty percent or steeper, and

   b. Impermeable subsurface material (typically silt and clay), frequently interbedded with granular soils (predominately sand and gravel), and

   c. Springs of seeping groundwater during the wet season (November to February);

2. Steep slopes of fifty percent or greater;

3. Any areas located on a landslide feature which has shown movement during the past ten thousand years or which is underlain by mass wastage debris from that period of time;

4. Any soil type contained on Table 6 and which does not lie along the shoreline of Puget Sound."

There are no known locations within the site that meet the current Thurston County ordinance criteria for landslide hazard areas.

Seismic Hazard Areas

Section 17.15.200 of the Thurston County Critical Areas Ordinance defines seismic hazards areas as: "…those areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement or soil liquefaction, such as artificial fill areas, and areas underlain by glaciolacustrine deposits and/or glacial outwash."

Based on review of the Quaternary Faults and Folds Database, no faults are mapped within a ten-mile radius of the site.[26]

Based on Site Class mapping for Thurston County, the developable portion of the site is mapped as IBC Site Class C to D (very dense soils and soft rock, to stiff soil), and is also mapped as having a very low susceptibility to liquefaction.[27] The floodplain to the south and west is mapped as having moderate to high susceptibility to liquefaction.

There are no identified landslide hazard areas associated with ground shaking located on the site.

Erosion Hazard Areas

Section 17.15.200 of the Thurston County Critical Areas Ordinance defines erosion hazard areas as: "…land characterized by any of the soil types identified by the Soil Conservation Service as "highly erodible land". This designation pertains to water erosion and not wind

[26] United States Geological Survey, 2011.
[27] Palmer, et al., 2004.

erosion. These areas may not be highly erodible until or unless the soil is disturbed by activities such as clearing or grading."

The slopes at the extreme southern and eastern edges of the developed upper portion of the site inclined steeper than 15 percent along the southwestern and southeastern portions of the site are considered erosion hazard areas because of the loose, granular nature of the Spanaway soils (see **Figure 3.1-5**).

Groundwater

Aquifer Systems

The principal aquifer in the vicinity of the site is the shallow aquifer in the recessional outwash soils. Other aquifers may underlie the shallow aquifer, but are not apparent from the available well logs.

Well logs in the vicinity indicate that the recessional outwash aquifer is at least 60 feet thick. It should be noted that localized lenses and layers of less permeable silty sand and silt soils are included within the recessional outwash deposits, and may affect aquifer characteristics such as groundwater flow and recharge. Groundwater levels measured in the wells and in geotechnical explorations completed within the Thurston County Site are generally about 20 to 35 feet below the surface of the currently developed portion of the site. Groundwater within the shallow aquifer likely flows to the southwest, toward the Chehalis River floodplain.

Water Well Data

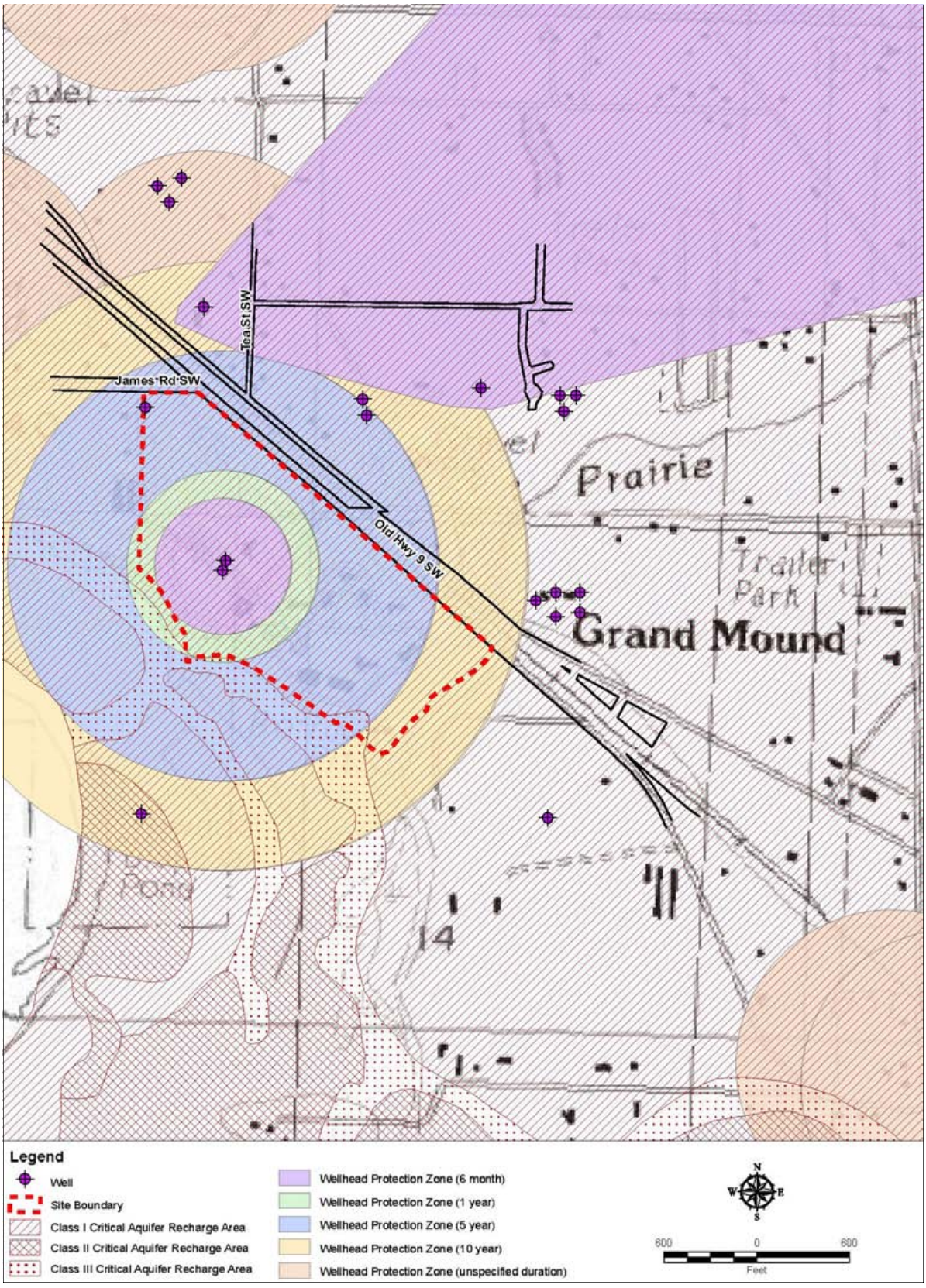
A review of records on file with the Washington State Department of Ecology indicates there are several existing water wells located within ¼ mile of the Thurston County Site. See **Figure 3.1-6** for the approximate locations of these wells.

Two of the wells are on the upper developed portion of the site and are used to supply the former Maple Lane Juvenile Detention Facility. These wells were drilled in the 1940s, and extend to depths of about 75 feet.[28] The two wells are housed in two separate small buildings located west of the existing administration building.

Critical Aquifer Recharge and Wellhead Protection Areas

The Thurston County Critical Areas Ordinance is in the process of being updated as of July 2011. A draft version of the update to the Critical Aquifer Recharge Area portion of the ordinance is in progress. The current version of the CARAs portion of the ordinance was put into effect in the mid 1990s.

[28] Personal communication with Avery, 2011.



Source: GeoEngineers, 2011

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Figure 3.1-6

Thurston County Site - CARA's & Wellhead Protection Zones

CARAs within Thurston County are classified according to the rating system included in the current Thurston County Critical Areas Ordinance (Section 17.15.505) as follows:

A. "'Category I, extreme aquifer sensitivity' are those areas with provide very rapid recharge with little protection, contain coarse soil textures and soil materials, and are derived from glacial outwash materials. The predominant soils series and types are those listed as Category I in Appendix B, located at the end of this chapter."

B. "'Category II, high aquifer sensitivity' are those areas which provide slightly lower recharge, also provide little protection, and are from materials of glacial deposit. The predominant soils series and types are those listed as Category II in Appendix B, located at the end of this chapter."

C. "'Category III, moderate aquifer sensitivity' are those areas with aquifers present but which have a surface soil material that encourages runoff and slows water entry into the ground. The predominant soils series and types are those listed as Category III in Appendix B, located at the end of this chapter."

D. "'Category IV, low aquifer sensitivity' are those areas of low groundwater availability and whose soil series are derived from basaltic, andesitic or sedimentary rock; or ancient glacial till (more consolidated, more clays at surface) and which have not formed geological formation that provide abundant groundwater. The predominant soils series and types are those listed as Category IV in Appendix B, located at the end of this chapter."

Based on the list provided in the referenced appendix, the developable portion of the site (mapped as Spanaway series soils) is within a Category I CARA.

Wellhead Protection Zones in the vicinity of the site include one associated with the two existing wells on the site, and two separate zones associated with two wells for the Grand Mound Public Water System (wellhead protection areas, as defined by the Thurston County Critical Areas Ordinance, are the surface and subsurface areas surrounding a water well or well field which supply a public water supply system, through which contaminants are reasonably likely to move toward and reach within one, five and ten years). The wellhead protection zone for the two on-site wells extends in a northeast direction across and beyond the site, as shown in **Figure 3.1-6**. The status of the two existing onsite wells would be determined based upon discussions with the County if the Thurston County Site was selected for the *Westside Prison Reception Center*.

The two wells for the Grand Mound system are located about 1 mile northwest of the site. The associated wellhead protection zones extend northeast of the wells, and do not cross the Thurston County Site, as shown in **Figure 3.1-6**.

3.1.2 Impacts

This section summarizes the potential earth-related impacts associated with the proposed *Westside Prison Reception Center* at the three site alternatives. Earth-related impacts could occur during construction (i.e. during demolition, grading activities and construction of infrastructure and buildings) and/or operation of the prison reception center (i.e. following site construction when the facility is fully functioning). See Section 3.3, **Plants, Animals, Habitat,**

and Surface Water Resources, for an evaluation of potential impacts on groundwater resources.

Bremerton Site

Topography and Grading

The design of the *Westside Prison Reception Center* on the Bremerton Site would be substantially influenced by surface topography. Ground surface elevations vary by about 40 feet within the area assumed for development in the northwestern portion of the site. Cuts and fills on the order of 10 to 20 feet are expected to be necessary in order to achieve a level building site. Cuts and fills of similar size are also expected to be necessary for the main access road extending northeast from SW Lake Flora Road. Parking areas, access driveways and detention ponds would also require modification of the existing topography. Based on a preliminary grading concept developed for the site, it is estimated that approximately 320,000 cubic yards (CY) of cut and fill would be required for site grading.

Geology and Soils

Potentially large volumes of cut and fill would be required for development of the prison reception center at the Bremerton Site. It is anticipated that project development would utilize balanced cuts and fills to reduce the amount of import or export soils. Fill soils in excess of that available from on-site excavations could be required, and offsite sources of fill could be partly depleted if they become necessary. Offsite soil disposal sites could also be needed.

The existing recessional drift and glacial till soils contain a significant amount of fines (particles passing the No. 200 sieve) and are therefore sensitive to changes in moisture content. If the moisture content of these soils is more than a few percent above optimum moisture content, they become difficult if not impossible to compact to structural fill specifications. Operation of equipment on these soils would also be difficult during wet weather conditions; thus, construction in these soils should be scheduled to avoid wet weather times.

Perched water may occur above the glacial till and also within more permeable lenses of sand within the till. Perched could be encountered in cuts made into the till, particularly during the normally wet seasons of the year.

Temporary construction dewatering for excavation would likely be necessary and could consist of pumping from sumps located within the excavations. Dewatering would not be expected to cause ground settlement in adjacent areas, except possibly in areas underlain by peat soil. Partial or complete removal of peat could be considered to address settlement is such areas.

Building and Infrastructure Support

Conventional spread footings would likely to be used at the Bremerton Site to support the proposed buildings. The glacial till soils would provide satisfactory support for building foundations and pavements, provided they are in an undisturbed condition. Settlements of structures supported on the till or properly compacted structural fill would be expected to be minor.

Placement of fill and/or structures over peat areas would result in excessive settlements due to the high compressibility of the peat unless the peat is removed.

Geologic Hazard Areas

Potential impacts associated with geologic hazard areas identified on the site (including steep slopes, landslide, seismic and erosion hazard areas) are described below.

Steep Slopes and Landslide Hazard Areas

Based on reconnaissance and review of published geologic information, there is a low potential for landsliding in the few areas identified as having slopes greater than 30 percent. Modification of existing slopes by grading could increase the potential for landsliding if the slopes were not properly designed. Also, uncontrolled surface and subsurface water flow resulting from slope alterations could increase the potential for sliding locally. The following measures could address potential landsliding issues: limiting soil disturbance and removal of vegetation, proper design and construction of cut and fill slopes, use of retaining structures where necessary, implementing features that control or avoid surface water or groundwater flow, and slope revegetation.

Seismic Hazards

The Bremerton Site may be subjected to moderate to strong shaking from various earthquake sources. Response to the shaking would be most pronounced in peat areas located in low lying portions of the site. Fault rupture would not be expected to impact development on this site.

Earthquake-induced sliding is generally not expected to impact prison reception center development, except in localized slope areas where shallow slides in loose slope materials may occur.

Erosion Hazards

Slopes exceeding 15 percent and having a vertical height of 10 feet or greater are considered to be erosion hazard areas within the Bremerton Site. Some of these slopes would be disturbed during construction, which would increase erosion potential. Construction activities that typically affect erosion potential include removal of vegetation and topsoil, grading, fill placement, and spoils removal or stockpiling. Erosion could lead to silt-laden runoff flowing offsite, resulting in water quality degradation of local surface waters. These impacts could be addressed with the development and implementation of a Temporary Erosion and Sedimentation Control (TESC) and Stormwater Pollution Prevention Plan (SWPPP) plan.

Substantial post construction erosion impacts would not be expected, provided that sufficient engineering controls such as Best Management Practices (BMPs) are put into place and that the site soils are stabilized through permanent landscaping.

Groundwater

Construction of the *Westside Prison Reception Center* at the Bremerton Site would create impervious surfaces that could cause a net reduction in groundwater recharge and shallow groundwater flow.

Installation of underground utilities within the site could alter shallow groundwater flow paths by diverting shallow groundwater toward permeable backfill within utility trenches. The installation of impermeable seepage barriers at intervals within the trench backfill could mitigate this potential impact.

The potential reduction of groundwater recharge to regional aquifers used by nearby wells is not considered to be significant because of the remaining undeveloped area within and around the site and within the recharge area.

Temporary dewatering of excavations could be necessary during construction to control groundwater inflow, particularly during the normally wet seasons of the year. These occurrences are expected to be highly localized and of relatively short duration. Temporary dewatering would not be expected to reduce the amount of recharge to local aquifers. There would be no long-term groundwater withdrawal related to the prison reception center project as water would be brought onsite from municipal sources.

Potential impacts on groundwater quality could include surface spills of fuels lubricants and other chemicals used during construction and operation of the prison reception center. Turbidity and suspended solids from construction activities generally do not affect groundwater. Near-surface sources of potential groundwater contaminants are less likely to affect the regional aquifers, which occur at greater depths and are typically overlain by one or more sequences of low permeability deposits. With proposed measures to limit the potential for groundwater quality impacts, significant impacts to groundwater quality or the wellhead protection zone could not be anticipated. Refer to *Section 3.1.3* for measures identified to limit the potential for groundwater quality impacts.

Mason County Site

Topography and Grading

The design of the *Westside Prison Reception Center* on the Mason County Site would be somewhat influenced by surface topography. Ground surface elevations vary by about 5 feet within the area assumed for development in the central portion of the site. The ground surface elevations vary by about 10 feet within the assumed development portion of the site that would extend into the lower portion of the hillside that ascends to the south property line. Portions of the two access roads would descend about 25 vertical feet from the level of West Dayton Airport Road (SR 102) down to the central portion of the site.

Cuts and fills on the order of 5 to 10 feet are expected to be necessary in order to achieve a level building area in the central and southern portions of the site. Cuts and fills on the order of 10 to 20 feet are expected to be necessary for the access roads. Parking areas, driveways and detention ponds would also require modification of the existing topography. Based on a preliminary grading concept developed for the site, it is estimated that approximately 120,000 CY of cut and fill would be required for site grading.

Geology and Soils

The potential impacts related to existing geology and soil conditions on associated with site development generally include:

- Settlement of structures and fill embankments; and,
- Earthwork constraints associated with stripping of unsuitable soils, and excavating, hauling, placing and compacting moisture sensitive soils.

It is anticipated that project development would utilize balanced cuts and fills to reduce the amount of import or export soils. Relatively small volumes of cut and fill would be required at this site, and would primarily occur for grading related to construction of the two access roads and for the portion of the building near the south property line.

Sufficient fill soil would likely be available from onsite excavations. Some export of excavated soils may be necessary and offsite soil disposal sites may be needed.

The existing recessional drift soils contain some fines (particles passing the No. 200 sieve) and are therefore somewhat sensitive to changes in moisture content. If the moisture content of these soils is more than a few percent above optimum moisture content, they become difficult to compact to structural fill specifications; thus, construction in these soils should be scheduled to avoid wet weather times. Operation of equipment on these soils would also be difficult during wet weather conditions.

Some groundwater could be encountered in deeper excavations. Temporary construction dewatering for excavations may be necessary and would likely consist of pumping from sumps located within the excavations. Dewatering would not be expected to cause ground settlement in adjacent areas.

Building and Infrastructure Support

Conventional spread footings would likely to be used at the Mason County Site to support the proposed buildings. Appropriate foundation support systems would be designed and constructed so that settlements would be within acceptable limits. Foundation systems would be designed in accordance with applicable IBC and Mason County codes.

The recessional outwash soils would provide satisfactory support for building foundations and pavements, provided such soils are in an undisturbed condition. Compacted structural fill extending down to the outwash would also provide satisfactory support. Settlements of structures supported on the outwash or properly compacted structural fill are expected to be minor. Potential settlement issues can be mitigated by using proper site preparation techniques that include removal of surficial organic materials (vegetation, forest duff, topsoil and large roots) from beneath proposed structure and pavement locations.

Geologic Hazard Areas

Potential impacts associated with geologic hazard areas identified on the site (including steep slopes, landslide, seismic and erosion hazard areas) are described below.

Steep Slopes and Landslide Hazards

Based on the results of reconnaissance and review of published geologic information, there is a low potential for landsliding in the few areas identified on site as having slopes greater than 30 percent. Modification of existing slopes by grading may increase the potential for landsliding if

not properly designed. Also, uncontrolled surface and subsurface water flow resulting from slope alterations could increase the potential for sliding locally.

Seismic Hazards

The Mason County Site may be subjected to moderate to strong shaking from various earthquake sources. Fault rupture is not expected to impact development on this site.

Earthquake-induced sliding is generally not expected to impact development, except in localized slope areas where shallow slides in loose slope materials may occur.

Erosion Hazards

Construction activities that typically affect erosion potential include removal of vegetation and topsoil, grading, fill placement, and spoils removal or stockpiling. Erosion may lead to silt-laden runoff flowing offsite, resulting in water quality degradation of local surface waters. Slopes exceeding 15 percent and having a vertical height of 10 feet or greater are considered to be erosion hazard areas within the site. Some of these slopes would be disturbed during construction, increasing erosion potential.

Post construction erosion impacts are not expected to be significant, provided that sufficient engineering controls such as BMPs are put into place and that the site soils are stabilized through permanent landscaping.

Groundwater

Construction of the *Westside Prison Reception Center* at the Mason County Site would create impervious surfaces that could cause a net reduction in groundwater recharge and shallow groundwater flow. This impact could be mitigated by including Low Impact Development (LID) stormwater features in the design of the new facility. Such features could include infiltration of stormwater generated from developed portions of the site via the use of pervious pavements, bioretention swales, rain gardens and other features. The quantity of water that can be infiltrated may be limited by the thickness of the recessional outwash soils and depth to groundwater.

The installation of underground utilities within the site could alter shallow groundwater flow paths by diverting shallow groundwater toward permeable backfill within utility trenches. The installation of impermeable seepage barriers at intervals within the trench backfill could mitigate this potential impact.

The potential reduction of groundwater recharge to regional aquifers used by nearby wells included within the Class II CARA is not considered to be significant because of the relatively small area of the site with respect to the remaining undeveloped area within and around the site and within the recharge area.

Temporary dewatering of excavations could be necessary during construction to control groundwater inflow, particularly during the wet seasons. These occurrences would likely be highly localized of relatively short duration. Temporary dewatering is not expected to reduce the amount of recharge to local aquifers. There would be no long-term groundwater withdrawal related to the project as water would be piped to the site from municipal sources.

Potential impacts on groundwater quality could include surface spills of fuels lubricants and other chemicals used during construction and operation of the proposed development. Turbidity and suspended solids from construction activities generally do not affect groundwater. Near-surface sources of potential groundwater contaminants, if not properly contained, could affect regional aquifers. These impacts could be mitigated with the use of construction Best BMPs, spill prevention and controls plans, construction materials and waste management plans, and monitoring of stormwater discharged to the groundwater systems. Refer to *Section 3.1.3* for detail on the measures identified to limit the potential for groundwater contamination.

Thurston County Site

Topography and Grading

The design of the *Westside Prison Reception Center* on the Thurston County Site would not be substantially influenced by surface topography, because the portion of the site to be developed is nearly level and ground surface elevations only vary by a few feet. Minor cuts and fills (less than 5 feet) are expected to be necessary in order to achieve a level building site. Minor cuts and fills are also expected for new driveways, parking areas and stormwater infiltration features. Steep slopes are not likely to be created during grading. Based on a preliminary grading concept developed for the site, it is estimated that approximately 35,000 CY of cut and fill would be required for site grading.

Geology and Soils

The potential impacts related to existing geology and soil conditions associated with site development generally include:

- Settlement of structures and fill embankments, and
- Earthwork constrains associated with stripping of unsuitable soils, and excavating, hauling, placing and compacting moisture sensitive soils.

It is anticipated that excavated onsite soils would be used for fills to reduce the import or export of soils. Offsite sources of fill could be needed, depending on final design grades, and offsite soil disposal sites could be needed if there is an excess volume of excavated soil.

Structural fill placed to support the building and pavement areas should be properly compacted. Settlement issues may be mitigated by using proper site preparation techniques that include removal of surficial organic materials (vegetation, forest duff, topsoil and large roots) and building demolition debris from beneath proposed structure and pavement locations.

Appropriate foundation support systems would be designed and constructed so that settlements would be within acceptable limits.

The existing recessional drift soils contain some fines (particles passing the No. 200 sieve) and would be sensitive to changes in moisture content. If the moisture content of these soils is more than a few percent above optimum, soils become difficult to compact to structural fill specifications; thus, construction in these soils should be scheduled to avoid wet weather times. Operation of equipment on these soils may also be difficult during wet weather conditions.

As indicated above, impacts associated with earthwork using the onsite, moisture sensitive soils could be mitigated by limiting earthwork activities to the dry season (typically June through October in the Puget Sound Region), or limiting earthwork activities during periods of wet weather that may occur during the normally dry season. Moisture condition (dry) soils if they become too wet during wet weather or if their natural moisture content is significantly above the optimum for compaction.

Temporary construction dewatering for excavations would likely be necessary and could consist of pumping from sumps located within the excavations. Temporary construction dewatering is not expected to cause ground settlement in adjacent areas.

Building and Infrastructure Support

Conventional spread footings would likely be used for the building(s) at the Thurston County Site. The recessional outwash soil would provide satisfactory support for building foundations and pavements, provided they are in an undisturbed condition. Compacted structural fill extending down to the outwash would also provide satisfactory support. Settlements of structures supported on the outwash or properly compacted structural fill would be expected to be minor.

Geologic Hazard Areas

Potential impacts associated with the geologic hazard areas identified on the site (including steep slopes, landslide, seismic and erosion hazard areas) are described below.

Steep Slopes and Landslide Hazards

Based on the results of reconnaissance and review of published geologic information, there is a low to moderate potential for landsliding in the steep slope along the southern margin of the developed portion of the site. Modification of existing slopes by grading is not anticipated for this portion of the site. Uncontrolled surface and subsurface water flow near the top of the slopes could increase the potential for sliding locally. These impacts could be mitigated by limiting soil disturbance and removal of vegetation, maintaining an adequate buffer distance from the top of steep slopes along the perimeter of the developed portion of the site, implement features that control or avoid surface water or groundwater flow, and slope revegetation, as necessary. Slope stability evaluations would be included in the design where appropriate, including identification of an adequate buffer distance.

Seismic Hazards

The Thurston County Site may be subjected to moderate to strong shaking from various earthquake sources. Fault rupture is not expected to impact the prison reception center development on the site. The impact of strong ground shaking could be mitigated by designing buildings and other structures in accordance with the seismic provisions of applicable buildings codes (such as the 2009 International Building Code).

Earthquake-induced sliding is generally not expected to impact the prison reception center development on the site, except in localized steep slope areas along the southern and eastern perimeter of the developed portion of the site, where shallow slides in loose slope materials may

occur. Shallow slide impacts could be mitigated by reducing slope height and providing adequate drainage and vegetation on and near the slope.

Erosion Hazards

The steep slopes along the southern and eastern perimeter of the developed portion of the site are considered to be erosion hazard areas. However, these slopes are not likely to be disturbed during construction, which would otherwise increase their erosion potential. Construction activities that typically affect erosion potential include removal of vegetation and topsoil, grading, fill placement, and spoils removal or stockpiling. Erosion could lead to silt-laden runoff flowing offsite, resulting in water quality degradation of local surface waters. A Temporary Erosion and Sedimentation Control (TESC) Plan and Stormwater Pollution Prevention Plan (SWPPP) are proposed to address potential erosion hazards on the site during construction.

Post construction erosion impacts are not expected to be substantial, provided that sufficient engineering controls such as BMPs are put into place and that the site soils are stabilized through permanent landscaping.

Groundwater

Construction of the *Westside Prison Reception Center* at the Thurston County Site would create impervious surfaces that could cause a net reduction in groundwater recharge and shallow groundwater flow. This impact could be mitigated by including Low Impact Development (LID) stormwater features in the design of the new facility, as described for the Mason County Site. Such features could include infiltration of stormwater generated from developed portions of the site via the use of pervious pavements, bioretention swales, rain gardens and other features. The quantity of water that can be infiltrated at the Thurston County Site is relatively high due to the high permeability of the near-surface recessional outwash soils.

The potential reduction of groundwater recharge to regional aquifers used by nearby wells within the Category I CARA is not considered to be significant because of the relatively small area of the site with respect to the remaining undeveloped area within and around the site, and within the recharge area. However, a reduction in shallow groundwater flow could adversely affect recharge to Prairie Creek.

Temporary dewatering of excavations might be needed during construction to control groundwater inflow, particularly during the normally wet seasons of the year. These occurrences are expected to be highly localized and of relatively short duration. Temporary dewatering is not expected to reduce the amount of recharge to local aquifers. There will be no long-term groundwater withdrawal related to the project as water will be brought onsite from municipal sources.

Potential impacts on groundwater quality could include surface spills of fuels lubricants and other chemicals used during construction and operation of the proposed development. Turbidity and suspended solids from construction activities generally do not affect groundwater. Near-surface sources of potential groundwater contaminants, if not properly contained, could affect regional aquifers. As described for the Mason County Site, these impacts could be mitigated with the use of construction BMPs, spill prevention and controls plans, construction materials and waste management plans, and monitoring of stormwater discharged to the groundwater systems.

Summary of the Three Site Alternatives

All of the sites would require grading to accommodate the proposed reception center facility and all sites contain certain geologic hazard areas including steep slope, landslide, seismic and erosion hazards; all hazards can be mitigated with appropriate design and construction techniques and the implementation of BMPs, as outlined in *Section 3.1.3*, Mitigation Measures. Comparatively, the Bremerton Site is substantially influenced by topography and development of the prison reception center on this site would require the largest amount of earthwork, with approximately 320,000 cubic yards of grading. The Bremerton Site contains geologic hazard areas (steep slopes, erosion areas and seismic hazards) in the central portion of the site and wellhead protection area along the extreme southern edge; with implementation of identified mitigation measures, significant impacts would not be anticipated. The Mason County Site is moderately influenced by topography and would require approximately 120,000 CY of grading. The Mason County Site contains geological hazard areas (steep slopes/landslide, erosion and seismic) along the northern and southern edges of the site, and the majority of the site is mapped as Class I CARA; with implementation of identified mitigation measures, significant impacts would not be anticipated. The Thurston County Site is only slightly influenced by site topography and development of the prison reception center on this site would require the least amount of earthwork with 35,000 CY of grading. Geologically critical areas (steep slopes and erosion hazards) are limited to the extreme southern and eastern edges of the developed upper portion of the site, with the majority of the upper developed portion of the site mapped as Category I CARA and wellhead protection zone. The status of the two existing onsite wells would be determined based upon discussions with Thurston County if the Thurston County Site was selected for the *Westside Prison Reception Center*. With implementation of identified mitigation measures, significant impacts would not be anticipated.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives, but the increased demand for additional long-term prison space would remain. Potential earth-related impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** – Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential earth impacts resulting from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in new earth-related impacts.

3. **Additional Long-Term Incarceration Capabilities** – Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for space as well as the displaced long-term prison space at the WCC due to increased prison reception center uses. Depending on

the location of the additional long-term incarceration facilities, such construction could result in environmental-health related impacts. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential earth-related impacts.

3.1.3 Mitigation Measures

Mitigation measures to address potential earth-related impacts are listed below.

All Sites

- Site-specific subsurface explorations, geotechnical evaluation and development of geotechnical design recommendations for specific elements of the proposed development would be completed prior to and during design of the facility at any of the three site alternatives. These activities should address the specific requirements in the relevant sections of code of the local jurisdiction.

- Cuts and fills of varying heights will be required for development on each of the sites. Slopes created by cuts that range up to 20 feet in height can be satisfactorily made at inclinations of 2H:1V (horizontal to vertical) or flatter. Cuts that cannot be sloped back could be supported with engineered retaining walls such as conventional gravity or retaining walls, mechanically stabilized earth (MSE) walls, soldier pile and tieback walls, or soil nail walls.

- Structural fill placed to support the building and paved areas would be properly compacted. Permanent fill slopes would generally be inclined at 2H:1V or flatter. Retaining walls could be used to limit the lateral extent of fills. Potential retaining wall options for fill applications include cantilever walls and MSE walls.

- Proper site preparation techniques would be used including: removal of surficial organic materials (vegetation, forest duff, topsoil and/or shallow peat deposits and large roots) from beneath proposed structure and pavement locations. Existing fill soils encountered during site grading would be removed and replaced if found to be in a loose or uncompacted condition.

- Appropriate support systems would be designed and constructed so that settlements would be within acceptable limits. Foundation systems would be designed in accordance with applicable IBC and local agency codes.

- Measures to address construction impacts in steeply sloping areas will include the following:

  - limiting soil disturbance and removal of vegetation
  - proper design and construction of cut and fill slopes
  - use of retaining structures where necessary
  - implementing features that control or avoid surface water or groundwater flow
  - slope revegetation
  - slope stability evaluations where appropriate, including identification of an adequate buffer distance.

- For construction, a Temporary Erosion and Sediment Control Plan (TESC) and a Stormwater Pollution Prevention Plan (SWPPP) would be developed and implemented which would provide for the interception and treatment of potential silt-laden runoff that could occur during clearing, grading, construction of structures, and site stabilization. The TESC and SWPPP plans would specify measures to prevent silt-laden runoff from leaving the construction site. The plans would describe specific requirements for soil- and ground-cover protection measures, conveyance systems, and sedimentation facilities and water quality monitoring. The TESC and SWPPP plans would be prepared in accordance with the respective jurisdiction's and the Washington State Department of Ecology requirements, and could include the following:

  - Limit clearing and grading to construction, laydown and staging areas to minimize the area of exposed soil.
  - Complete site preparation, excavations and fill placement during the drier summer and early fall months to the extent practical.
  - Route surface water through temporary drainage channels around and away from disturbed soils or exposed slopes.
  - Cover exposed soil stockpiles and exposed slopes with plastic sheeting, as appropriate.
  - Use straw mulch and erosion control matting to stabilize graded areas and reduce rain and runoff impacts to slopes.
  - Use mobile sedimentation tank trucks to collect and contain turbid water, if needed. Alternatively, polymers could be used to reduce water turbidity.
  - Construct temporary sedimentation ponds, check dams and filter (silt) fences to remove as much sediment as possible prior to returning runoff to natural drainages.
  - Intercept and drain water from any surface seeps where they are encountered.
  - During periods of wet weather, stabilize disturbed areas using mulch and/or hydroseeding within an appropriate time interval.
  - Construct stabilized construction entrances and tire cleaning areas.
  - Designate procedures to be used for disposal of wood wastes and soil spoils materials that cannot be reused onsite.
  - Conduct routine monitoring of the construction site to see that the erosion and sediment control features are operating as intended and to repair or augment the features, as appropriate.
  - Allow for temporary cessation of construction activities under certain limited circumstances, if weather conditions warrant.

- Following construction, fill embankment slopes and cut slopes would be promptly vegetated (such as with hydroseeding) to protect against erosion during project operation.

- All on-site structures would be designed per the seismic provisions of the applicable building codes (such as the International Building Code) at the time of design.

- Shallow slides induced by strong ground shaking could be mitigated by reducing slope height and providing adequate drainage and vegetation on and near the slope.

- Impacts associated with earthwork using the onsite moisture sensitive soils can be mitigated by limiting earthwork activities to the dry season, typically considered to extend from June through October in the Puget Sound region. Even during the normally dry season, periods of wet weather may occur, and it may be necessary to limit earthwork activities during such occurrences. Also, it may be necessary to moisture condition (dry) soils if they become too wet during wet weather or if their natural moisture content is significantly above the optimum for compaction.

- If earthwork occurs during the wet seasons of the year, the associated activities may need to be limited to windows of dry weather, or free-draining fill soil may need to be imported to the site.

- Surficial materials removed during clearing and stripping could be reused in landscaped areas.

- Temporary shoring could be used to support cuts for utilities and other underground features where open cuts would not be feasible. The shoring or open cuts should be designed and constructed in accordance with Washington State regulations.

- Temporary dewatering may be needed during construction of subsurface features to control and limit subsidence to nearby areas.

- LID stormwater features could be incorporated into the design of the new facility to mitigate the potential reduction in the quantity of shallow groundwater flow. Such features could include infiltration of stormwater generated from developed portions of the site via the use of infiltration ponds, pervious pavements, bioretention swales, rain gardens and other features. Infiltration facilities would be placed close to existing wetlands and drainages where possible.

- To address the potential diversion of shallow groundwater along underground utilities, impermeable seepage barriers could be installed at intervals within trench backfill.

- Potential groundwater quality impacts could be addressed by the implementation of construction BMPs, TESC and SWPPP plans, spill prevention and control plans, construction materials and waste management plans and monitoring of stormwater discharged to the groundwater systems. These measures would conform to Ecology and the respective jurisdiction's requirements, specifically as they relate to aquifer protection.

- To avoid groundwater quality impacts, above-ground fuel tanks for the onsite generator or onsite fueling would include double wall construction and leak detection and spill prevention systems to reduce the potential for leaks or spills.

Bremerton Site

- Slopes created by cuts that range up to 20 feet in height could be made at inclinations of 2H:1V (horizontal to vertical) or flatter.

- Cuts that cannot be sloped back could be supported with engineered retaining walls such as conventional gravity retaining walls, MSE walls, soldier pile and tieback walls, or soil nail walls.

- Construction could be avoided in areas underlain by peat, or peat should be partially or completely removed.

- Structures should be located outside of soft soil areas such as peat areas, or soft soils should be removed.

Mason County Site

- Slopes created by cuts that range up to 20 feet in height could be made at inclinations of 2H:1V (horizontal to vertical) or flatter.

- Cuts that cannot be sloped back could be supported with engineered retaining walls such as conventional gravity retaining walls, mechanically stabilized earth (MSE) walls, soldier pile and tieback walls, or soil nail walls.

Thurston County Site

- Proper site preparation techniques could be used to mitigate potential settlement issues including removal of building demolition debris from beneath proposed structure and pavement locations.

3.1.4 Significant Unavoidable Adverse Impacts

With implementation of identified mitigation measures, no significant unavoidable adverse impacts would be anticipated.

3.2 AIR QUALITY

This section was prepared by ENVIRON and describes the existing air quality conditions on and in the vicinity of the three site alternatives. Potential impacts related to air quality with construction and operations of the proposed *Westside Prison Reception Center* are also analyzed.

3.2.1 Affected Environment

This section describes the existing air quality conditions in the Puget Sound region and in the vicinity of the three site alternatives.

Air quality is generally assessed in terms of whether concentrations of air pollutants are higher or lower than ambient air quality standards established to protect human health and welfare. Three agencies have jurisdiction over ambient air quality at the alternative sites: the U.S. Environmental Protection Agency (EPA), the Washington Department of Ecology (Ecology), and the local clean air agency within the project's jurisdiction. These agencies establish regulations that govern both the concentrations of pollutants in the outdoor air and contaminant emissions from air pollution sources. Although their regulations are similar in stringency, each agency has established its own standards. Unless the state or local jurisdiction has adopted more stringent standards, the EPA standards pertain.

To track air quality conditions, Ecology and local agencies maintain a network of monitoring stations throughout the greater Puget Sound region. These stations are typically located where air quality problems may occur, and so are usually in or near urban areas or close to specific large air pollution sources. Other stations are used to indicate regional air pollution levels. Based on monitoring information collected over a period of years, the EPA and Ecology designate regions as being "attainment" or "nonattainment" for particular air pollutants. Attainment status is therefore a measure of whether air quality in an area complies with the National Ambient Air Quality Standard (NAAQS) for a specific so called "criteria" air pollutant. Regions that were once designated nonattainment that have since attained the standard are considered "maintenance" areas.

Most air contaminant measurements in most areas of the Puget Sound region have been below federal air quality standards in recent years and have shown decreasing trends for several years. This indicates air quality in most areas is generally good despite growth and development, although challenges exist complying with some recently promulgated and more stringent air quality standards. Pertinent air pollutants are discussed in greater detail below.

Greater Puget Sound Region

Particulate Matter – PM_{10} and $PM_{2.5}$

Particulate matter air pollution is comprised of particles either emitted directly into the air (e.g., dust) or formed when hot gases cool and condense. Such air pollution is generated primarily by industrial activities and operations involving fuel combustion and material handling, and by other fuel combustion sources like motor vehicle engines, vessel engines, and residential wood burning. Federal, state, and local regulations set limits for particle concentrations in the air (i.e., mass per unit volume) based on the size of the particles and the related potential threat to

health. When first regulated, particle pollution was based on "total suspended particulate," which included all size fractions. As sampling technology improved and the importance of particle size and chemical composition became more apparent, ambient standards were revised to focus on the size fractions thought to be most dangerous to human health.

At present, there are standards for inhalable "coarse" particles less than about 10 micrometers (microns) in diameter (PM_{10}) and inhalable "fine" particles less than about 2.5 microns in diameter ($PM_{2.5}$). The latter size range (and even smaller "ultrafine" particles) are now thought to represent the most dangerous size fractions of airborne particulate matter because such small particles (e.g., a typical human hair is about 100 microns in diameter) can be breathed deeply into the lungs. In addition, such particles are often associated with toxic substances, deleterious in their own right, which can adsorb to particulate matter and be carried into the respiratory system. Based on the most recent studies, in 2006 the EPA set more stringent standards for $PM_{2.5}$. [(1)]

There are currently no PM_{10} or $PM_{2.5}$ monitoring stations in the immediate vicinity of the three site alternatives. Most measured concentrations of both PM_{10} and $PM_{2.5}$ at monitoring stations in the Puget Sound area have complied with the applicable ambient air quality standards since 1997, except in the Tacoma area where violations have resulted in a new nonattainment area. [(2)] Because the remaining areas in Puget Sound have complied with the newest standard, it is likely that throughout most of the year, existing fine particulate concentrations are less than the limits set by the standards near the alternative sites as well. During prolonged periods of stagnant meteorological conditions, however, it is possible that emissions from vehicles and combustion sources like residential wood burning sometimes elevate particulate matter concentrations to levels that nearly reach or exceed the health based standards.

Carbon Monoxide (CO)

CO is a by-product of incomplete combustion. It is generated by vehicular traffic and other fuel-burning activities, such as residential space heating, especially if the space heating units use solid fuels such as coal or wood. There are two short-term air quality standards for CO: a 1-hour average standard of 35 ppm and an 8-hour average standard of 9 ppm.

The impacts of CO are usually localized near the source(s), with the highest ambient concentrations usually occurring near congested roadways and intersections during periods of cold temperatures (autumn and winter months), light winds, and stable atmospheric conditions. Such weather conditions reduce the atmospheric mechanisms that disperse and dilute pollutants.

None of the three site alternatives are within the Puget Sound region's CO air quality maintenance area. [(3)] There have been no measured violations of the standards in many years,

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(1) USEPA, 2006,*40 CFR 50: National Ambient Air Quality Standards for Particulate Matter*, EPA-HQ-OAR-2001-0017; FRL-RIN 2060-AI44, September 21, 2006

(2) Air quality monitoring in the Wapato Hills-Puyallup River Valley area (Tacoma) have persistently exceeded the 24-hour PM2.5standard. On December 14, 2009, EPA designated this area nonattainment. Ecology must submit a plan by December 14, 2012 to reduce PM2.5 and bring the area into attainment by 2014.

(3) In 1991, a nonattainment area was established that encompassed a large portion of the Everett-Seattle-Tacoma urban area. EPA redesignated the Central Puget Sound region as attainment for CO in 1997, and the region remains a CO air quality maintenance area.

and measured CO levels at all monitoring locations in the state have shown a decreasing trend in CO concentrations since the early 1990's.[4] These trends are the result of federal, state, and local plans and vehicle emission control requirements designed to reduce vehicle emissions by implementing use of lower pollutant-emitting vehicles and cleaner fuels.

Ozone

Ozone is a highly reactive form of oxygen created by sunlight-activated chemical transformations of nitrogen oxides and volatile organic compounds (hydrocarbons) in the atmosphere. Ozone problems tend to be regional in nature because the atmospheric chemical reactions that produce ozone occur over a period of time, and because during the delay between emission and ozone formation, ozone precursors can be transported far from their sources. Transportation sources like automobiles and trucks are among the sources that produce ozone precursors.

In the past, due to violations of the federal ozone standards, the Puget Sound region was designated as nonattainment for ozone. In 1997, EPA determined that the Puget Sound ozone nonattainment area had attained the health-based ozone standard in effect at that time. The EPA reclassified the Puget Sound region as attainment for ozone and approved the associated air quality maintenance plan. In 2005 EPA revoked the 1-hour ozone standard in most areas of the US including the Puget Sound region, which ended the ozone maintenance status of this region. At the same time, however, the EPA adopted a new more stringent 8-hour average ozone standard that has since been made even more stringent. Based on ozone measurements over the last few years, the greater Puget Sound region may be on the brink of becoming nonattainment for ozone based on measured violations of the current 8-hour average standard.[5] Under the current air quality plans and policies, this status has no direct implications for the project under consideration. Also, none of the alternative sites are located in the counties that may or may not be designated nonattainment.

Typical existing sources of air pollution near the alternative sites include automobile and truck traffic traveling on local roads and highways, light industrial enterprises, and residential wood-burning devices. Residential wood burning produces a variety of air contaminants, including relatively large quantities of fine particulate matter (PM_{10} and $PM_{2.5}$, respectively). Pollutant emissions from diesel sources (e.g., most heavy-duty truck and bus engines) include $PM_{2.5}$ and a variety of toxic air pollutants. Non-diesel vehicle emissions are comprised primarily of carbon monoxide (CO), but also include small amounts of sulfur dioxide, toxic air pollutants, and both hydrocarbons and nitrogen oxides, which can transform to become ground-level ozone.

Vehicles emit PM_{10} and $PM_{2.5}$ directly in their exhaust and indirectly as a function of their tires acting on paved and unpaved surfaces, but the amounts of particulate matter generated by individual vehicles are small compared with some other sources (e.g., a wood-burning stove). Because vehicles are a primary air pollutant source in the vicinity of each alternative site, project-related increases in either traffic or delay at intersections could potentially cause air quality impacts. Because off-site traffic has the greatest potential to affect air quality near the alternative sites, the potential for project-related traffic impacts was the focus of the air quality review for the project.

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(4) USEPA, 2011, AirData: Access to Air Pollution Data, http://www.epa.gov/air/data/index.html
(5) See http://www.pscleanair.org/airq/basics/criteria/ozone.aspx

Bremerton Site

The Puget Sound Clean Air Agency (PSCAA) has jurisdiction over air quality for the Bremerton Site. There are no air pollutant monitors in the vicinity of the site except one $PM_{2.5}$ monitor near Silverdale, several miles northeast of Bremerton. Typical existing sources near the Bremerton Site include vehicle traffic, the Bremerton Airport, light industrial sources, and residential wood burning. As previously discussed, air quality in the Bremerton Site vicinity is generally good based on existing monitoring trends throughout the greater Puget Sound region.

Mason County Site

The Olympic Region Clean Air Agency (ORCAA) has jurisdiction over air quality for the Mason County Site. There are no air pollutant monitors in the site vicinity except one $PM_{2.5}$ monitor located in Shelton, several miles southeast of the Mason County Site. Typical existing sources near the site include vehicle traffic, the Sanderson Field Airport, light industrial sources, and residential wood burning. Air quality in the Mason County Site vicinity is generally good based on existing monitoring trends throughout the greater Puget Sound region.

Thurston County Site

The ORCAA has jurisdiction over air quality for the Thurston County Site. There are no air quality monitors within close proximity to this site. The closest measurement station includes a $PM_{2.5}$ monitor in Oakville, several miles northwest of the site. Typical existing sources near the Thurston County Site include local retail businesses, local traffic and highway truck and vehicle traffic from I-5, light industrial entities, the Chehalis coal-fired power facility, and residential wood burning. Air quality in the Thurston County Site vicinity is generally good based on monitored trends.

3.2.2 Impacts

This section provides an analysis of the potential air quality impacts associated with the proposed *Westside Prison Reception Center* at the three site alternatives. Air quality impacts could occur during construction (i.e. during demolition, grading activities or construction of infrastructure and buildings) and/or operation of the prison reception center (i.e. following site construction when the facility is fully functioning).

This section is presented in two sections: potential air quality impacts which would be applicable at all of the three site alternatives and potential air quality impacts specific to a particular site.

All Sites

Construction

During site preparation and construction of the proposed *Westside Prison Reception Center* at any of the alternative sites, dust from activities such as excavation, grading, and filling would contribute to localized increases in ambient concentrations of suspended particulate matter.

Construction contractor(s) would be required to comply with the local air quality regulations to minimize or avoid fugitive dust emissions.

Some construction activities would cause odors, particularly during paving operations using tar and asphalt. The construction contractor(s) would be required to comply with the regulations to control odors so as to prevent undue interference with nearby uses. Such odors would be short-term and therefore unlikely to adversely affect the nearest residences. In addition, no slash or demolition burning would be permitted in association with this project at any of the alternative sites.

Construction would require the use of heavy equipment and haul trucks to deliver construction materials and possibly fill to the sites. Vehicle engines would emit air pollutants that would slightly and temporarily degrade local air quality, especially during earthwork activities. But because the construction would be temporary and relatively minor in scope, no significant air quality impacts would be expected.

Nonetheless, emissions from construction sources and especially from diesel-fueled engines are subject to increasing scrutiny from regulatory and health agencies because of their confirmed and suspected risks to human health. So, even though there is little or no danger of such emissions resulting in pollutant concentrations that would exceed an ambient air quality standard, pollution control agencies are now urging that such emissions be minimized to the extent practicable in order to reduce health risks. With implementation of mitigation measures to provide reasonable controls of emissions of dust, odor, and diesel exhaust, construction activities at any of the alternative sites would not be expected to significantly impact air quality.

Operation

The primary activity associated with operation of the *Westside Prison Reception Center* at any of the alternative sites that would result in emissions of air pollutants would be traffic to and from the facility. All other potential project-related emissions (e.g., heating, ventilation systems, and cooking) would be minor and would, in the case of sufficiently large boilers, be subject to review by either PSCAA (Bremerton Site) or ORCAA (Mason and Thurston County). Thus, the focus of this air quality analysis is potential impacts associated with project-related traffic.

Of the various air pollutant emissions from vehicles that are regulated, carbon monoxide (CO) is the pollutant emitted in the largest quantity. CO is therefore often used as an indicator of potential air quality issues related to traffic sources. The most frequently used approach for evaluating CO concentrations in the ambient air is to review (and possibly perform air quality modeling of) traffic conditions near project-affected intersections. Accordingly, traffic conditions with operation of the facility at any of the alternative sites were considered based on the traffic impact analysis conducted for this project (see Section 3.13, **Transportation**, for additional details).

A review based on EPA guidance regarding potential air quality impacts from transportation sources indicated projected traffic conditions in 2016 with and without the prison reception center at each alternative site would be unlikely to result in any significant air quality impacts. In accord with EPA guidance, the review focused on *signalized* intersections with levels of service (LOS) D or worse. Unsignalized intersections, and roundabouts or signalized intersections with LOS C or better do not warrant analysis because by EPA definition, the operation of such intersections would have little or no potential to adversely affect air quality nearby.

Expected signalized intersection LOS and average vehicle delays during AM and PM peak traffic periods suggest prison reception center-related traffic would, at all but one location, not rise to the level of requiring quantitative analysis of possible CO levels. That is, with one exception (near Thurston County, as described in the following section), projected future LOS and corresponding delays at all intersections near all three alternative sites are about the same or not substantially different (i.e., less than about 10 seconds of delay) with or without the proposed facility. Under these conditions, by definition in EPA guidance for considering potential traffic-related air quality impacts, the air quality effects of prison reception center traffic would be minor because project-related delays at nearby intersections are minimal and air quality conditions are unlikely to be adversely affected.

Bremerton Site

Construction

Development of the Bremerton Site would include clearing about 49.5 acres of undeveloped land vegetated with mature trees that were previously logged, and associated earthwork. There are few nearby residences that would be potentially affected by emissions associated with construction-related activities. Precautions to minimize or avoid emissions would be required by PSCAA regulations regarding fugitive dust, diesel exhaust, and odors.

Operation

Based on the traffic analysis, the prison reception center-related vehicle trips would not affect projected delays at nearby intersections during the AM or PM peak hours. The stop-controlled and roundabout intersections would operate at LOS C or better with and without the project in 2016, and do not warrant further consideration of potential air quality impacts based on EPA guidance. No significant operational air quality impacts would be anticipated.

Mason County Site

Construction

Development of the Mason County Site would include clearing about 43 acres of undeveloped land vegetated with trees that were previously logged, and associated earthwork. Similar to the Bremerton Site, there are few, if any, nearby residences that would be potentially affected by construction-related emissions. However, ORCAA regulations require measures to minimize fugitive dust and odors.

Operation

Unsignalized intersections near the Mason County Site would operate at LOS C or better with and without the project in 2016 and do not warrant further consideration for air quality impacts based on EPA guidance. No significant operational air quality impacts would be anticipated.

Thurston County Site

Construction

Development of the Thurston County Site would include redevelopment of the Maple Lane Juvenile Detention Facility. Some existing buildings and/or pavement would be removed and hauled away as part of site preparation. Demolition of existing structures might require removal and disposal of building materials containing asbestos. In this event, demolition contractors would be required to comply with U.S. EPA and ORCAA regulations related to the safe removal and disposal of any asbestos-containing materials. Unlike the Bremerton and Mason County Sites, there is a somewhat increased potential for odor and dust impacts near the Thurston County Site because construction activities would occur relatively near existing residences and businesses in the community.

Operation

The Thurston County Site is in a small community with more traffic and development nearby compared to the other two sites. Local traffic at the signalized intersection of Old Highway 99 SW at US 12 would be affected by project-related traffic. Based on the traffic analysis, the intersection would operate at LOS D with or without the project and decrease about 3 seconds during the PM peak period in 2016 with project traffic. EPA guidance suggests a quantitative analysis is warranted to assess potential air quality impacts near intersections performing at LOS D or worse.

The worst-case operating scenario for the Old Highway 99 SW / US 12 intersection was evaluated using the Washington State Department of Transportation screening tool, WASIST, to assess potential CO concentrations under worst-case conditions. Based on projected future traffic conditions both with and without the project in 2016, and assuming a worst-case background CO concentration, model-predicted CO concentrations were less than the ambient air quality standards for CO. This suggests that although project traffic would slightly increase delay and affect intersection performance, the increase in delay would not substantially affect air quality near this intersection.

Based on this review, no significant impacts to ambient air quality are likely due to the proposed prison reception center being developed at the Thurston County Site.

Summary of the Three Site Alternatives

Construction activities at all three of the site alternatives could contribute to localized, temporary impacts to air quality (emissions, dust, odors), but would be subject to local air quality regulations to minimize or avoid impacts. All three of the sites have nearby residential uses that could be sensitive to temporary construction air quality impacts, although the Thurston County Site has more residential uses than the Mason County or Bremerton. With compliance with applicable air quality regulations; no significant construction-related air quality impacts would be anticipated at any of the three site alternatives.

The main source of air quality impacts during operations of the prison reception center would be emissions associated with traffic generated from the facility. Projected traffic levels associated with the prison reception center facility would not substantially affect level of service at

intersections nearby the Bremerton or Mason County Sites; therefore, no significant air quality impacts would be anticipated. Projected traffic levels of certain turning movements at two intersections near the Thurston County site would reduce level of services levels, but would not be expected to result in air quality impacts.

No significant air quality or construction-related air quality impacts would be anticipated with development of the *Westside Prison Reception center* at any of the three site alternatives.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives but the increased demand for additional long-term prison space would remain. Potential environmental health-related impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** – Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts air quality resulting from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in new air quality impacts.

3. **Additional Long-Term Incarceration Capabilities** – Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for be space as well as the displaced long-term prison space displaced at the WCC by increased prison reception center uses. Depending on the location of the additional long-term incarceration facilities, construction and operations could result in air quality impacts. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts to air quality.

3.2.3 Mitigation Measures

Mitigation measures to address potential air quality impacts are listed below.

Construction

Possible mitigation for reducing the potential for air quality impacts during construction includes measures for reducing both exhaust emissions and fugitive dust. Best management practices should be employed to minimize potential impacts. This would be particularly important with the Thurston County Site where residences would be close to construction activities. The Washington Associated General Contractors brochure *Guide to Handling Fugitive Dust from Construction Projects* suggests a number of methods for controlling dust and reducing the potential exposure of people to emissions from diesel equipment. A list of some of possible

mitigation measures that could be implemented to reduce potential air quality impacts from construction activities follows.

- Use only equipment and trucks that are maintained in optimal operational condition.
- Restrict construction truck idling (e.g., limit idling to a maximum of 5 minutes).
- Use carpooling or other trip-reduction strategies for construction workers.
- Stage construction to minimize overall transportation system congestion and delays to reduce regional emissions of pollutants during construction.
- Implement construction curbs on hot days when the region is at risk for exceeding the ozone standard, and work at night instead.
- Locate construction equipment as far away as possible from sensitive receptors such as fresh air intakes to buildings, air conditioners and sensitive populations.
- Locate construction staging zones where diesel emissions will not be noticeable to the public or be near sensitive populations such as the elderly and the young.
- Spray exposed soil with water or other suppressant to reduce emissions of PM_{10} and deposition of particulate matter.
- Cover all trucks transporting materials, wetting materials in trucks, or providing adequate freeboard (space from the top of the material to the top of the truck bed), to reduce PM_{10} emissions and deposition during transport.
- Provide wheel washers to remove particulate matter that would otherwise be carried off site by vehicles to decrease deposition of particulate matter on area roadways.
- Cover dirt, gravel, and debris piles as needed to reduce dust and wind-blown debris.
- Route and schedule construction trucks to reduce delays to traffic during peak travel times to reduce air quality impacts caused by a reduction in traffic speeds.
- Remove particulate matter deposited on paved, public roads, sidewalks and bicycle and pedestrian paths to reduce mud and dust; sweep and wash streets frequently to reduce emissions.

Operation

No operational air quality impacts were identified. Therefore, no additional mitigation is proposed.

3.2.4 Significant Unavoidable Adverse Impacts

No significant unavoidable air quality impacts were identified.

3.3 PLANTS, ANIMALS, HABITAT and SURFACE WATER RESOURCES

This section describes plants, wildlife, habitat, and surface water features on and in the vicinity of each of the three site alternatives and the potential impacts to these resources with construction and operations of the proposed *Westside Prison Reception Center*. This section is based on the *Plants and Animals Technical Report for the Westside Prison Reception Center* by AHBL, Inc., which is included in **Appendix C** to this Draft EIS.

Methodology

The following is a summary description of the methodology used for the plants, animals, habitat and surface water resources analysis for the proposed *Westside Prison Reception Center* sites. See **Appendix C** for additional details.

Background information was reviewed including: historical and current aerial photographs and GIS topography maps; US Fish and Wildlife Service National Wetland Inventory (NWI) maps and Critical Habitat database; the US Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey; Washington State Department of Fish and Wildlife (WDFW) SalmonScape Version 4 Maps; Washington Department of Fish and Wildlife Priority Habitat and Species Database; Washington State Department of Natural Resources Natural Heritage Information System Website; Water Resource Inventory (WRIA) maps; local critical area codes and ordinances; and, local critical area/GIS mapping systems.

Site visits were conducted at each of the sites in April and July/August of 2011 by staff from AHBL in order to document existing conditions. The presence of vegetation, wildlife, habitat, wetlands and surface water features were documented.

Wetland delineations were performed at each site, in accordance with the methodology outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2.0)*, (May 2010), as required per WAC 173-22-035. This methodology requires the use of three wetland parameters – wetland hydrology, hydric soils and hydrophytic vegetation – when determining the presence or absence of wetlands. Generally, all three parameters must be present for an area to meet the wetland criteria. Any wetlands identified at the sites were then classified using the Washington State Wetland Rating System for Western Washington and/or the wetland rating system from each local jurisdiction (if applicable). See **Appendix C** for additional details.

3.3.1 Affected Environment

This section provides a description of existing plants species, animal species, habitat and surface water features present and on or in the immediate vicinity of the three sites.

Bremerton Site

The 60-acre Bremerton Site is primarily undeveloped forested property with a few dirt roads.

Plants

Regulated and Mapped Resources

No endangered, threatened or sensitive plant species have been mapped or identified on or in the vicinity of the Bremerton Site.

Current/Observed Conditions

During the site visits conducted in support of this EIS analysis, it was noted that the Bremerton Site is dominated by second and third growth forest dominated by Douglas fir *(Pseudotsuga menziesii*) with scattered red alder *(Alnus rubra)*. The understory is dominated by salal *(Gaultheria shallon)*, sword fern *(Polystichum munitum)*, and evergreen huckleberry *(Vaccinium ovatum)*. Pockets of the site are not forested and are dominated by scattered young pine trees less than 10 feet in height, salal, evergreen huckleberry, and Scot's broom *(Cytisus scoparius)*. Onsite wetlands and offsite Wetland F (described in the Wetlands and Surface Water Features Section below) are dominated by red alder, willow *(Salix spp.)*, Douglas spiraea *(Spiraea douglasii)*, and lady fern *(Athyrium felix-femina)*. The riparian corridor associated with the onsite and offsite streams (described in the Wetlands and Surface Water Features Section below) is dominated by red alder, willow, and salal.

Utility extensions associated with the proposed *Westside Prison Reception Center* (see **Section 3.15** for details) would be developed in the area adjacent to SR 3 north of the Bremerton Site and would be within the road prism and includes paved road and gravel shoulders. The area where the proposed membrane bioreactor (MBR) sanitary sewer facility (see Section 3.15, **Utilities**, for details) would be located near the existing sewage lagoons is dominated by forest similar to the Bremerton Site.

No endangered, threatened or protected plant species were observed on or in the vicinity of the Bremerton Site during site visits conducted as part of this EIS analysis.

Wetlands and Surface Water Features

Regulated and Mapped Resources

No wetland or surface features were noted on the site on the US Fish and Wildlife Service NWI Map or the Bremerton Critical Areas Map.

The WDFW Priority Habitat and Species Database indicates the closest mapped surface water features are Lider Lake (approximately 600 feet northwest of the site, north of SR 3), a wetland and tributary to the North Fork of Union River located approximately 1,300 feet northwest of the site (north of SR 3) and a wetland complex located 300 feet south of the site (southwest of SW Lake Flora Road). The Bremerton Critical Areas Map indicates the closest critical areas as Lider Lake (a Class One Habitat Protection Zone), a wetland located northeast of the site (north of SR 3) and a wetland located approximately 1,000 feet southwest of the site (across SR 3).

The United States Department of Agriculture (USDA) Natural Resource Conservation Service *Web Soil Survey* does not indicate the presence of hydric soils[1] on the site, although the soil series identified on the site (Alderwood Series) may contain hydric soil inclusions.

The Bremerton Site is located in the Kitsap Basin (WRIA District 15). No streams have previously been identified on or in the vicinity of the site.

A *Wetland Reconnaissance Report*[2] was completed on the site in 2005 and identified two small wetlands near the southern boundary of the site and a wetland and stream corridor near the southeast corner of the site along SW Lake Flora Road.

Current/Observed Conditions

A wetland delineation was conducted on the Bremerton Site for this EIS analysis in August 2011. Eighteen wetlands were identified onsite and one wetland was identified offsite to the northwest (Wetland F), as shown on **Figure 3.3-1** and listed on **Table 3.3-1**.

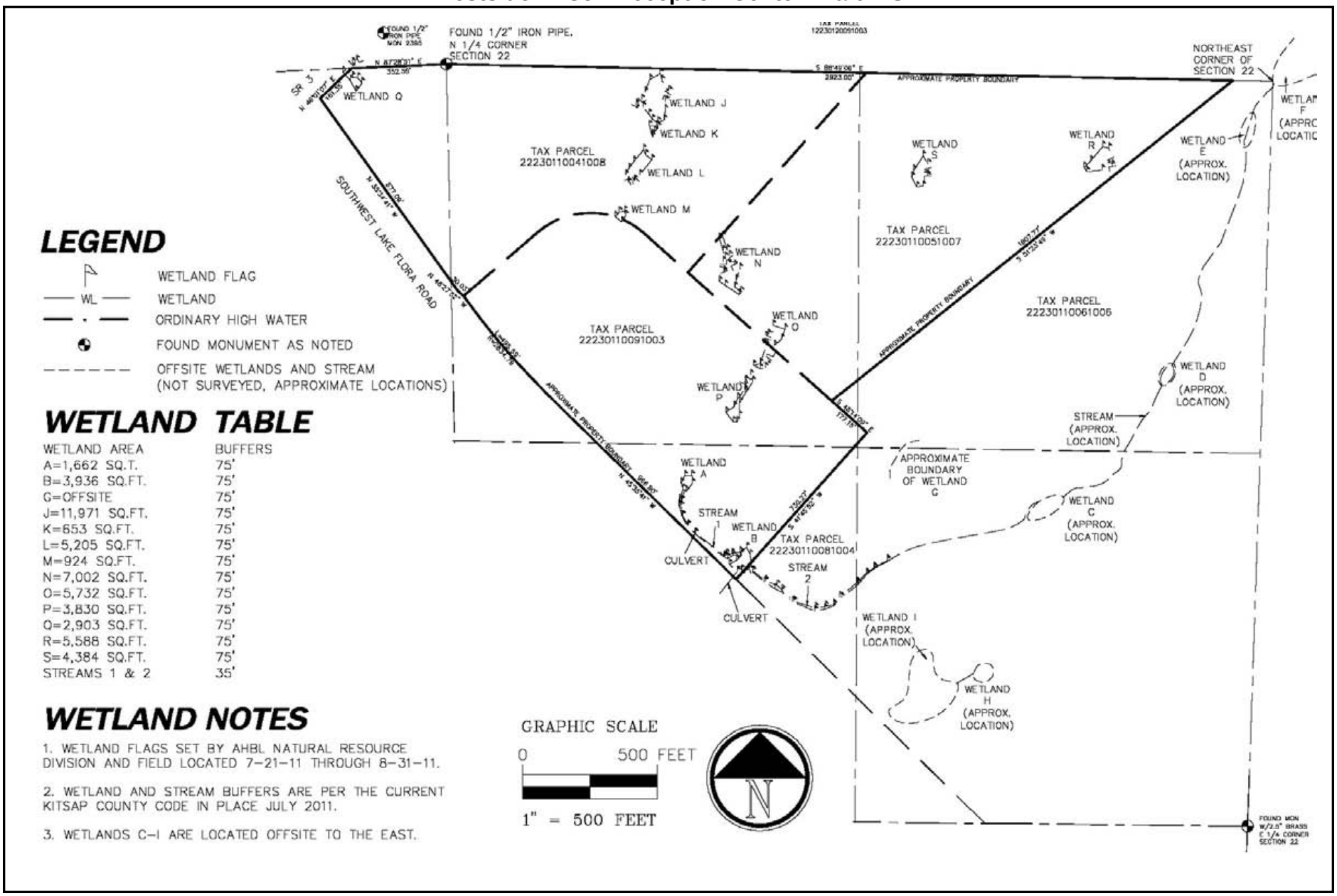
Table 3.3-1
WETLANDS ON AND ADJACENT TO THE BREMERTON SITE

Wetland Identifier	Location	Wetland Category Per BMC	Hydrogeomorphic Classification	Cowardin Classification	Required Buffer Per BMC
A	Onsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet
B	Onsite	III	Depressional	Palustrine forested, scrub-shrub	75 feet
C	Onsite	III	Riverine	Palustrine scrub-shrub, emergent	75 feet
D	Onsite	III	Riverine	Palustrine scrub-shrub, emergent	75 feet
E	Onsite	III	Riverine	Palustrine scrub-shrub, emergent	75 feet
G	Onsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet
H and I	Onsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet
J	Onsite	III	Depressional	Palustrine scrub-shrub	75 feet
K	Onsite	III	Depressional	Palustrine emergent	75 feet
L	Onsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet
M	Onsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet
N	Onsite	III	Depressional	Palustrine forested, scrub-shrub, emergent	75 feet
O	Onsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet
P	Onsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet
Q	Onsite	III	Depressional	Palustrine forested, scrub-shrub, emergent	75 feet
R	Onsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet
S	Onsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet
F	Offsite	II	Depressional	Palustrine scrub-shrub, emergent	100 feet

Source: AHBL, 2011.

[1] A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. This term is part of the legal definition of a wetland. The US Natural Resources Conservation Service maintains the official list of hydric soils (http://en.wikipedia.org/wiki/Hydric_soil, accessed 2011).

[2] Adolfson Associates, Inc. *Wetland Reconnaissance Report,* September 16, 2005.



Source: AHBL, 2011

Figure 3.3-1

Bremerton Site - Wetland Map

The onsite wetlands were classified as Category III and the offsite wetland is classified as Category II per BMC 20.14.320; Category I being the highest functioning/quality wetlands and Category IV being the lowest.

Category II wetlands are defined as having any of the following criteria:

- Provide high levels of some functions, being difficult, though not impossible to replace; or

- Perform most functions relatively well, scoring 51-69 out of 100 points (DOE Wetlands Rating System, 2004).

Category III wetlands are defined as having the following criteria:

- Provide moderate levels of functions, scoring between 30-50 out of 100 points (DOE Wetlands Rating System, 2004).

Two streams were identified onsite and three streams were identified near the offsite utility corridor and the proposed MBR facility. These streams were classified as Type Ns streams, which means they are seasonal non-fish bearing streams. Type Ns streams have a 35-foot required buffer.

Animals/Habitat (Non-wetland)

Regulated and Mapped Resources

No endangered, threatened or protected animal species or protected habitat features have been previously identified on or in the vicinity of the Bremerton Site or the locations of the offsite utility corridor and the proposed sewage treatment (MBR) facility.

The Bremerton Site (as well as most of the Western Washington region) is located within the Pacific flyway for migratory birds, as identified by the USFWS and the WDFW. Migratory birds may pass through the site while traveling between breeding areas to the north and wintering areas to the south or they may winter or breed at the site.

According to data provided by the USFWS and the WDFW, protected species that have potential to be located in the immediate vicinity of the Bremerton Site are listed in **Table 3.3-2**.

Table 3.3-2
PROTECTED WILDLIFE SPECIES AND IMPORTANT SPECIES POTENTIALLY LOCATED IN THE VICINITY OF THE BREMERTON SITE

Common Name	Scientific Name	Federal Status	State Status	Detected at Bremerton Site
Bald Eagle	Haliaeetus leucocephalus	Species of Concern	Sensitive	No
Western Toad	Anaxyrus boreas	Species of Concern	Candidate	No
Pacific pond turtle	Actinemys marmorata	Species of Concern	Endangered	No
Peregrine falcon	Falco peregrinus	Species of Concern	Sensitive	No
Pileated woodpecker	Dryocopus pileatus	None	Candidate	No
Purple martin	Progne subis	None	Candidate	No
Yellow billed cuckoo	Coccyzus americanus	Candidate	Candidate	No
Vaux's swift	Chaetura vauxi	None	Candidate	No
Purple martin	Progne subis	None	Candidate	No

Source: U. S. Fish and Wildlife Service, 2011, and Washington Department of Fish and Wildlife, 2011

Current/Observed Conditions

No endangered, threatened or protected animal species or habitat resources were observed on the Bremerton Site during site visits.

Animals observed visually and audibly on the Bremerton Site during the site visit conducted in support of this EIS analysis included killdeer *(Charadrius vociferus)*, chickadees *(Poecile atricapilla)*, nuthatch *(Sitta canadensis)*, robin *(Turdus migratorius)*, crow *(Corvus brachyrhynchos)*, and sparrow *(Spizella sp.)*. Garter snake *(Thamnophis sp.)* and Douglas' squirrel *(Tamiasciurus douglasii)* were observed on the site. Deer and rabbit scat were also observed on the site. The seasonal onsite stream and offsite stream (described in the Wetlands and Surface Water Features section above) are not fish bearing and flow into wetlands south of the site beyond SW Lake Flora Road.

Mason County Site

The Mason County Site is primarily undeveloped forested property with a few dirt roads.

Plants

Regulated and Mapped Resources

No endangered, threatened or sensitive plant species have been mapped or identified on or in the vicinity of the Mason County Site or within the proposed utility corridor route.

Current/Observed Conditions

Site visits conducted for this EIS analysis in July 2011 indicate that the Mason County Site is dominated by young coastal pine (Pinus contorta), Douglas fir (Pseudotsuga menziesii) and red alder (Alnus rubra) trees with an understory dominated by fool's huckleberry (Menziesia ferruginea), salal (Gaultheria shallon), Oregon grape (Mahonia nervosa) and evergreen huckleberry (Vaccinium ovatum). The Mason County Site was noted to have been logged in the last 20 years.

No endangered, threatened or protected plant species were observed on or in the vicinity of the Mason County Site or within the proposed utility corridor route during site visits conducted as part of this EIS analysis.

Wetlands and Surface Water Features

Regulated and Mapped Resources

No wetland features were noted on or in the vicinity of the site or within the proposed utility corridor route on the USFWS NWI Map or the Mason County GIS system.

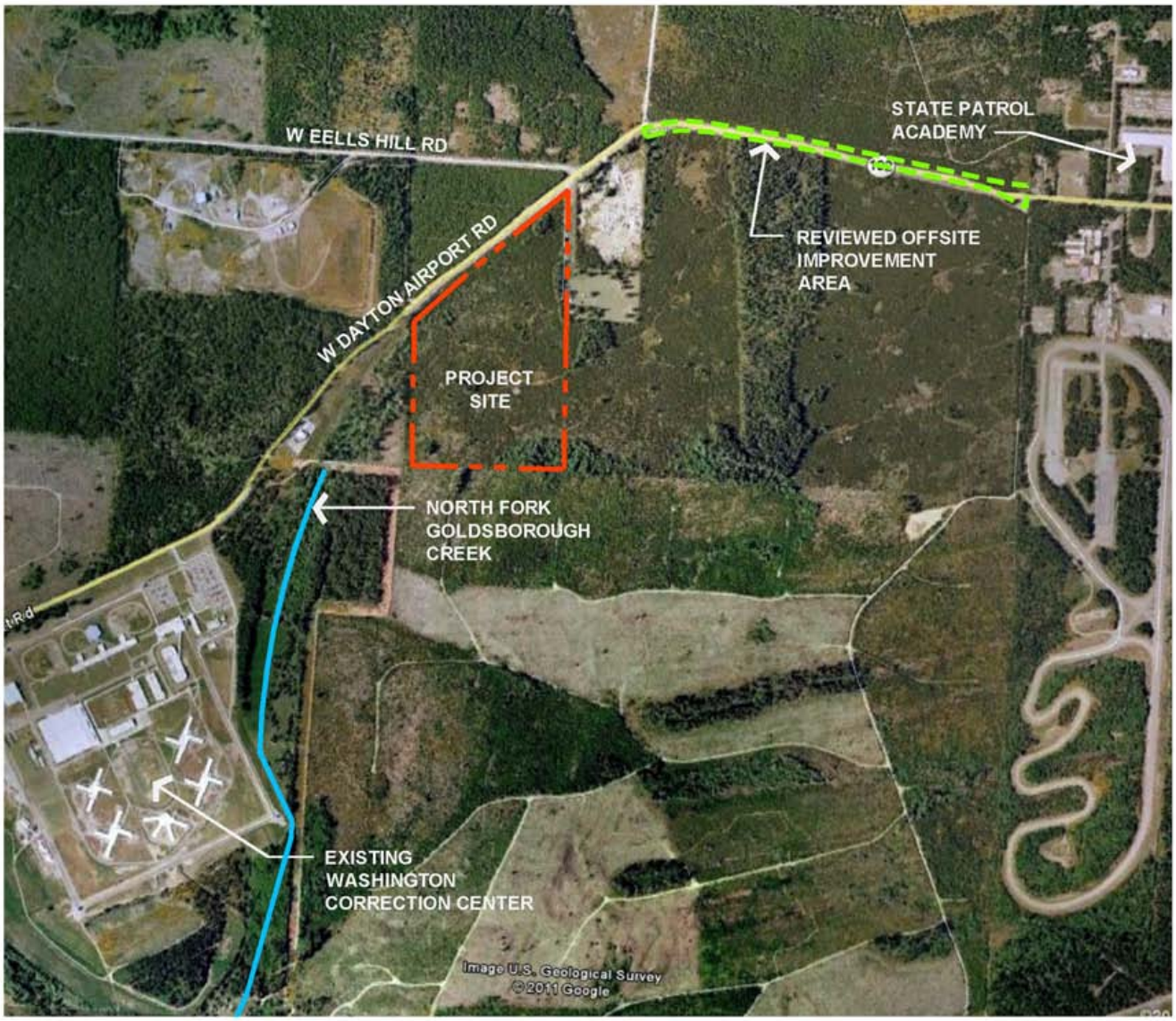
USDA Natural Resource Conservation Service *Web Soil Survey* does not indicate the presence of hydric soils[3] on the site.

The Mason County Site is located in the Kennedy Goldsborough River Basin (WRIA District 14). The WDFW Priority Habitat and Species Database indicates that the site contains the headwaters to the North Fork of Goldsborough Creek. As shown on **Figure 3.3-2**, the North Fork of Goldsborough Creek is located in the northwest corner of the Mason County Site and offsite along the west property boundary, as identified on the WDFW SalmonScape Version 4 and the Mason County GIS system. No streams are located within the proposed utility corridor route.

Current/Observed Conditions

A wetland delineation survey was conducted on the Mason County Site in April 2011. A 1.9-acre wetland was identified on the site, as shown on **Figure 3.3-3**. The wetland is located in the northwest corner of the site and extends offsite to the west. The wetland is a Category I system in accordance with the Western Washington Wetland Rating form based on Special Characteristics (SC4 Forested Wetlands).

[3] A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. This term is part of the legal definition of a wetland. The US Natural Resources Conservation Service maintains the official list of hydric soils (http://en.wikipedia.org/wiki/Hydric_soil, accessed 2011).



SITE BOUNDARY

REVIEWED OFFSITE IMPROVEMENT AREA

N

GRAPHIC SCALE

0 1,500 FEET

1" = 1500 FEET

Source: AHBL, 2011

Figure 3.3-2
Mason County Site - Goldsborough Creek

Source: AHBL, 2011

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Figure 3.3-3
Mason County Site - Wetland Map

According to the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al, 1979), the wetland is a Palustrine forested, scrub-shrub, open water, occasionally flooded to seasonally flooded to saturated system. The wetland is dominated by coastal pine, western red cedar (Thuja plicata) and red alder, Douglas spiraea (Spiraea douglasii), salmonberry (Rubus spectabilis), Scoular's willow (Salix scouleriana), mannagrass (Glyceris elata) and tough-me-not (Impatience noli-tangere). The wetland topography consists of interspersed wetlands with upland hummocks.

Water is provided to the wetland by shallow groundwater, and local runoff. The wetland provides water to the downstream North Fork of Goldsborough Creek which starts near the southwest corner of the Mason County Site where the wetland flows through a culvert. Soils in the wetland are gravelly loam to gravelly clay loam. The wetland generally has high biologic functions due to its size, variety of water depths, presence of large woody debris and snags, high diversity in the plant community, and interspersion of habitats including upland hummocks and adjacent forested buffer.

Habitat within the wetland system and adjacent systems provides for a wide range of species that use the habitat including amphibians, birds, and mammals. Snags and downed logs are present. In general, the wetland has high hydrologic functions. The wetland is large, occasionally and seasonally flooded, the headwaters to the offsite creek, and provides water quality treatment, removal of sediments, and flood water retention.

No wetlands or surface water features were noted within the proposed utility corridor route.

Animals and Habitat (Non-wetland)

Regulated and Mapped Resources

No endangered, threatened or protected animal species or protected habitat features have been previously identified on the Mason County Site or within the proposed utility corridor route.

The Mason County Site (as well as a large portion of the Western Washington Region) is located within the Pacific flyway for migratory birds, as identified by the USFWS and the WDFW. Migratory birds may pass through the site while traveling between breeding areas to the north and wintering areas to the south or they may winter or breed at the site.

The WDFW Priority Habitat and Species database indicates the site contains the headwaters to the North Fork of Goldsborough Creek. The WDFW SalmonScape Version 4, WDFW Priority Habitat and Species Database and the Mason County GIS system indicates that downstream of the site, the creek is listed as containing winter steelhead and Coho salmon.

Within one mile of the Mason County Site at the Shelton Airport are Shelton Pocket Gopher-Mazama (state Threatened species and federal Candidate species) and Streaked Horned Lark nest areas (state Endangered species and federal Candidate species); no indication of pocket gopher were observed on the site

According to data provided by the USFWS and the WDFW, protected species that have potential to inhabit the immediate vicinity of the Mason County Site are listed in **Table 3.3-3**.

Table 3.3-3
PROTECTED WILDLIFE SPECIES AND IMPORTANT SPECIES POTENTIALLY LOCATED IN THE VICINITY OF THE MASON COUNTY SITE

Common Name	Scientific Name	Federal Status	State Status	Detected at Mason County Site
Bald Eagle	Haliaeetus leucocephalus	Species of Concern	Sensitive	No
Cascade frog	Rana cascadae	Species of Concern	None	No
Mazama pocket gopher	Thomomys mazama (only subspecies couchi)	Candidate	Threatened	No
Northern groshawk	Accipiter gentilis	Species of Concern	Candidate	No
Pacific pond turtle	Actinemys marmorata	Species of Concern	Endangered	No
Peregrine falcon	Falco peregrinus	Species of Concern	Sensitive	No
Pileated woodpecker	Dryocopus pileatus	None	Candidate	No
Purple martin	Progne subis	None	Candidate	No
Streaked Horn Lark	Eremophila alpestris strigata	Candidate	Endangered	No
Van Dyke salamander	Plethodon vandykei	Species of Concern	Species of Concern	No
Pacific pond turtle	Actinemys marmorata	Species of Concern	Endangered	No

Source: U.S. Fish and Wildlife Service, 2011, and Washington Department of Fish and Wildlife, 2011.

Current/Observed Conditions

No endangered or threatened animal species or protected habitat features were identified on the Mason County Site or within the proposed utility corridor route during site visits conducted as part of this EIS analysis.

Birds observed visually and audibly on the Mason County Site during the field visit included killdeer (Charadrius vociferus), mourning dove (Zenaida macroura), chickadees *(Poecile atricapilla)*, nuthatch *(Sitta canadensis)*, robin *(Turdus migratorius)*, crow (Corvus brachyrhynchos), and sparrow (Spizella sp.). Deer and rabbit scat were also observed on the site.

Thurston County Site

The northern 55-acre portion of the Thurston County Site has been highly disturbed and developed with buildings and driveways; the southern 155-acre portion is undeveloped.

Plants

Regulated and Mapped Resources

The Washington State Department of Natural Resources Natural Heritage Information System website indicates the presence of rare plants or high quality ecosystems. The resource indicates a rare plant in the vicinity of the site (a small flower trillium - *Trillium parviflorum*), but this plant was determined to be located in the riparian corridor of Prairie Creek upstream from the Thurston County Site (north of Old Highway 9). No rare plants or high quality ecosystems have been mapped on the site.

The Thurston County Geodata Map identifies Oak Habitat located on the eastern portion of the site (outside of the existing fenceline) surrounding a section of the upper developed portion of the site near Prairie Creek, as shown on **Figure 3.3-4** This habitat extends offsite to the northeast and generally parallels Prairie Creek. Oregon White Oak woodlands are a protected habitat as defined by the WDFW and Thurston County. No Oak Habitat is mapped on the northern, developed portion of the site.

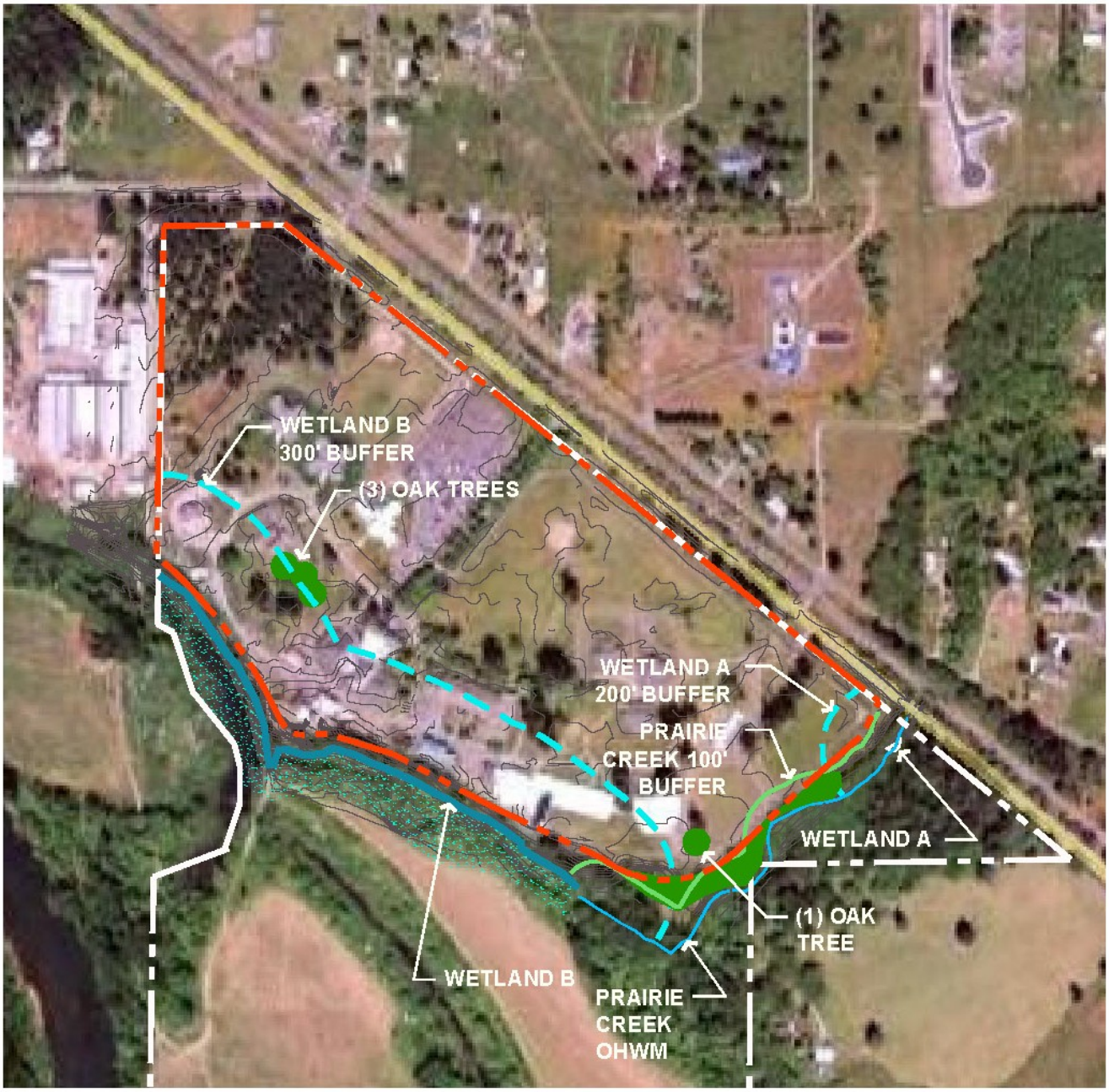
No other endangered, threatened or sensitive plant species have been previously identified on or in the vicinity of the developed portion of the Thurston County Site or within the proposed utility extension route.

Current/Observed Conditions

During the site visits conducted in support of this EIS analysis, it was noted that the developed, northern portion of the site is dominated by mowed lawn and maple trees along many of the roads. Other plant features noted were a Douglas fir *(Pseudotsuga menziesii)* grove in the northern portion of the site with a grassy understory, scattered Indian plum *(Oemleria cerasiformis)*, red elderberry (Sambucus racemosa), mature Douglas fir, fruit trees, landscape trees, four Oregon White Oak trees, landscaped planning beds and an abandoned vegetable garden.

As indicated previously, Oregon White Oaks are a protected species. Four Oregon White Oak trees were observed on the northern developed portion of the site within the existing fence and perimeter road, as shown on **Figure 3.3-4**. No other endangered or threatened plant species were identified on or in the vicinity of the Thurston County Site or the proposed utility extension route during site visits conducted as part of this analysis.

Offsite to the east is a five- to ten-foot wide grassy strip along the existing fence line. On the 155-acre undeveloped portion of the site, beyond the existing chain link fence and perimeter road, are additional oak woodlands, as shown on **Figure 3.3-4**. The oak woodlands are dominated by Oregon White Oak trees, with Oregon ash *(Fraxinus latifolia)*, big leaf maple (Acer macrophyllum), and Douglas fir trees scattered among the oaks. The understory below the oaks is dominated by hawthorn (Crategus douglasii), snowberry (Symphoricarpos albus), Indian plum, elderberry, vine maple (Acer circinatum), sword fern *(Polystichum munitum)*, hazelnut (Corylus cornuta), and oceanspray (Holodiscus discolor).



Source: AHBL, 2011

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Figure 3.3-4
Thurston County Site - Wetlands, Habitat and Surface Water Features and Buffers

A walking review of the Thurston County Site habitat in early July 2011 resulted in no detection of small flower trillium.

The offsite riparian corridor along Prairie Creek is dominated by Oregon Ash (Fraxinus latifolia), big leaf maple, and Douglas fir, with a scattering of western red cedar, black cottonwood (Populus balsamifera), and red alder. The understory is dominated by Himalayan blackberry (Rubus discolor), snowberry, thimbleberry (Rubus parviflorus), trailing blackberry *(Rubus ursinus)*, salmonberry, Indian plum, red elderberry, vine maple, hazelnut, oceanspray, and sword fern.

Wetlands and Surface Water Features

Regulated and Mapped Resources

The USFWS NWI Map identifies Palustrine forested and unconsolidated bottom wetlands (associated with Prairie Creek and the Chehalis River) in the undeveloped southern portion of the site and in offsite areas to the southeast and south.

The USDA Natural Resource Conservation Service *Web Soil Survey* does not indicate the presence of hydric soils[4] on the northern portion of the site but does indicate their presence in the southern, undeveloped portion of the site.

The Thurston County Site is located in the WRIA Distirct 23, the Chehalis River Basin. The WDFW SalmonScape Version 4 Map indicates that Prairie Creek is located in the southeastern, undeveloped portion of the site and offsite to the east and south of the site. Prairie Creek drains into the Chehalis River which is mapped by WDFW along the southern boundary of the undeveloped portion of the site and flowing to the south.

The Thurston County Geodata Map does not identify wetland or streams on the northern, developed portion of the Thurston County Site but does identify Prairie Creek, the Chehalis River and their associated wetlands on the southern, undeveloped portion of the site (outside of the existing fenceline perimeter).

Current/Observed Conditions

A wetland delineation was conducted on the Thurston County Site in July 2011 by staff from AHBL. Two wetlands (Wetlands A and B) were identified near the developed portion of the site; Wetland A is to the northeast and Wetland B is to the south of the perimeter fence, as shown on **Figure 3.3-4**. (Other wetlands in the southern, undeveloped portion of the site were not delineated because of their distance from the currently developed portion of the site.) No wetlands are located within the proposed utility extension route.

Wetland A is approximately 0.01 acres in size and is located outside the perimeter fence along Prairie Creek near Old Highway 9. Wetland A is a Category II system with a hydrogeomorphic

[4] A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. This term is part of the legal definition of a wetland. The US Natural Resources Conservation Service maintains the official list of hydric soils (http://en.wikipedia.org/wiki/Hydric_soil, accessed 2011).

classification of Riverine (according to the current Thurston County Code). According to the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al, 1979), Wetland A is a Palustrine forested, seasonally flooded system dominated by Oregon ash, red alder *(Rubus spectabilus)* buttercup (Ranunculus repens), salmonberry, and reed canarygrass (Phalaris arundinacea). Seasonal hydrology in the wetland is provided by overbank flooding of Prairie Creek. Soils in Wetland A are gravelly sandy loam. Wetland A generally has moderate biologic functions due to its size, seasonal shallow water, lack of large woody debris and snags, and low diversity in the plant community. Habitat within the wetland system and adjacent buffer, and association with Prairie Creek provides for a wide range of species that use the habitat. Snags and downed logs are not present. Habitat diversity is provided by interspersion of "habitat" types between the wetland, Prairie Creek, and the forested riparian corridor areas adjacent to the wetland. In general, the wetland has moderate hydrologic functions. The wetland is a small, seasonally flooded depression connected to Prairie Creek, and provides water quality treatment, removal of sediments, and flood water retention. The outer 70 feet of the buffer is functionally interrupted by the existing paved perimeter road and twelve foot tall chain link perimeter fence. The buffer beyond the fence and road, within the developed portion of the site, consists of a soccer field.

Wetland B is over 100 acres in size and is located adjacent to the southwestern boundary of the northern developed portion of the site (outside of the perimeter fence). The southwestern side of the site slopes steeply down from the perimeter fence over a vertical height of about 20 feet to the level of the wetland. Wetland B is a Category I system with a hydrogeomorphic classification of Riverine (according to the current Thurston County Code). According to the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al, 1979), Wetland B is a Palustrine forested, scrub-shrub, emergent, aquatic, open water system dominated by black cottonwood, willow species *(Salix spp.)*, red osier dogwood (Cornus stolonifera), skunk cabbage (Lysichiton americanum), sedges *(Carex spp.)*, water parsley (Oenantha sarmentosa), buttercup *(Ranunculus repens)*, lily pads *(Nuphar plysepalum)*, Mannagrass, and American brooklime *(Veronica beccabunga)*. Wetland B is a permanently to seasonally flooded system that is an old oxbow of the Chehalis River and the lower portion of Prairie Creek, with areas of ponded water up to three or four feet deep. Water is provided to Wetland B by groundwater, surface water discharge from Prairie Creek, and seasonal overbank flooding of the Chehalis River. Water in Wetland B flows from the south to the north into Prairie Creek, and ultimately enters the Chehalis River. Soils in Wetland B are silt loam to silty clay loam to muck. Wetland B generally has high biologic functions due to its size, variety of water depths, presence of large woody debris and snags, high diversity in the plant community, and interspersion of habitats including Prairie Creek, the Chehalis River, farm fields, and channels associated with the farm fields and adjacent forest. Habitat within the wetland system and adjacent systems provides for a wide range of species that use the habitat including fish, amphibians, birds, and mammals. Snags and downed logs are present. In general, the wetland has high hydrologic functions. The wetland is large, is permanently and seasonally flooded, and is connected to the Chehalis River and Prairie Creek, and provides water quality treatment, removal of sediments, and flood water retention. The outer 240 to 250 feet of the Wetland B buffer is functionally interrupted by the existing paved perimeter road and twelve foot tall chain link perimeter fence. The buffer area beyond the fence and road (i.e., extending onto the northern currently developed portion of the site) consists of existing buildings, utilities and sidewalks.

Animals/Habitat (Non-wetland)

Regulated and Mapped Resources

The site has been mapped by the WDFW as having soils known to be inhabited by pocket gophers. Mazama pocket gophers are listed as a threatened species by WDFW and as a candidate species by the USDFW. Resident cutthroat trout are documented to use Prairie Creek by the WDFW. No other endangered, threatened or protected animal species or habitat resources have been previously identified on the Thurston County Site or the proposed utility extension route.

The WDFW SalmonScape Version 4 Map indicates that Prairie Creek is located south and west of the site. Prairie Creek is not shown on SalmonScape as containing salmon species, likely due to a fish barrier identified northwest of the site, although the Chehalis River to which Prairie Creek drains is listed as containing fall and spring Chinook, winter steelhead and Coho salmon.

The Thurston County Site (as well as most of the Western Washington region) is located within the Pacific flyway for migratory birds, as identified by the USFWS and the WDFW. Migratory birds may pass through the site while traveling between breeding areas to the north and wintering areas to the south or they may winter or breed at the site (southern undeveloped portion of the site).

According to data provided by the USFWS and the WDFW, protected species that have potential to inhabit the immediate vicinity of the Thurston County Site are listed in **Table 3.3-4**.

Table 3.3-4
PROTECTED WILDLIFE SPECIES AND IMPORTANT SPECIES POTENTIALLY LOCATED IN THE VICINITY OF THE THURSTON COUNTY SITE

Common Name	Scientific Name	Federal Status	State Status	Detected at Thurston County Site
Bald Eagle	Haliaeetus leucocephalus	Species of Concern	Sensitive	Yes, but not in regulated distance
Band-tailed pigeon	Columba fasciata	None	None	No
Cavity-nesting ducks (includes Wood Duck, Bufflehead, Common and Hooded Mergansers, Barrow's Goldeneye)		None	None	No
Great blue heron	Ardea herodias	None	None	No

Common Name	Scientific Name	Federal Status	State Status	Detected at Thurston County Site
Mazama pocket gopher	Thomomys mazama (only subspecies couchi, glacialis, louiei, tumuli, and melanops; or Shelton, Roy Prairie, Cathlamet, Tenino, and Olympic pocket gophers, respectively)	Candidate	Threatened	No
Mardon skipper*	Polites mardon	Candidate	Endangered	No
Mountain quail*	Oreortyx pictus			
Olympic mudminnow	Novumbra hubbsi	None	None	No
Osprey	Pandion haliaetus			No
Peregrine falcon	Falco peregrinus	Species of Concern	Sensitive	No
Pileated woodpecker	Dryocopus pileatus	None	Candidate	No
Purple martin	Progne subis	None	Candidate	No
Red-tailed hawk*	Buteo jamaicensis	None	None	No
Spotted frog	Rana pretiosa	None	Candidate	No
Western bluebird	Sialia mexicana	None	None	No
Western Gray Squirrel**	Sciurus griseus	Species of Concern	Threatened	No
Pacific pond turtle	Actinemys marmorata	Species of Concern	Endangered	No
Taylor's checkerspot*	Euphydryas editha taylori	Candidate	Endangered	No

Source: Thurston County Code Chapter 17.15, 1994, U. S. Fish and Wildlife Service, 2011, and Washington Department of Fish and Wildlife, 2011

** Implementation by Thurston County deferred until management recommendations are prepared for this species.*

*** Implementation by Thurston County deferred within all urban growth areas.*

Current/Observed Conditions

As stated previously, the site has been mapped by the WDFW as having soils known to be inhabited by pocket gophers. Mazama pocket gophers are listed as a threatened species by WDFW and as a candidate species by the USFWS. A site visit by AHBL staff and WDFW staff on July 5, 2011, confirmed no detection of Mazama pocket gopher mounds onsite. No endangered, threatened or protected animal species or habitat resources were observed on the Thurston County Site during site visits.

Animals observed visually and audibly on the Thurston County Site during the site visit conducted in support of this EIS analysis included mourning dove, chickadees, nuthatch, robin, crow and sparrow.

3.3.2 Impacts

This section summarizes the potential impacts to plants, animals, habitat and surface water resources with the proposed *Westside Prison Reception Center* at the three alternative sites. Impacts to plants, animals, habitat and surface water resources could occur during construction (i.e. during demolition, grading activities or construction of buildings) and/or operation of the proposed facility (i.e., following site construction when the facility is fully functioning).

Bremerton Site

Plants

Location of the proposed *Westside Prison Reception Center* on the Bremerton Site would occupy approximately 27.5 acres (approximately 46 percent of the 60 acre site) consisting of buildings, surface parking, access drives and service/bus yard. Open space/landscaping would comprise an additional 12 acres of landscape and 10 acres of open space acres (approximately 37 percent of the site). In total, development of the new *Westside Prison Reception Center* at this site would result in the conversion of approximately 49.5 acres (82 percent of the site) of vegetated area to a governmental/institutional use (including associated landscaping and open space). The remaining 10.5 acres (18 percent of the site) would remain in natural vegetation.

An off-site utility extension would be required to serve a prison reception center on the Bremerton Site (see Section 3.15, **Utilities**, for details). The offsite sewer line would extend west along SW Lake Flora Road and north along SR 3 to the existing sewage lagoons where the proposed sewer treatment facility (MBR) would be constructed to serve the *Westside Prison Reception Center*. No significant impacts to endangered, threatened or protected plant species would be anticipated.

Construction

No endangered, threatened or protected plant species were identified on or in the vicinity of the Bremerton Site or within the offsite utility expansion areas; therefore, no impacts to endangered, threatened or protected plant species would be anticipated with development of the proposed prison reception center on this site.

Clearing and grading at the Bremerton Site would require removal of the majority of the existing forest and understory vegetation within the site area. Clearing, grading and removal of vegetation and mature trees would comply with applicable regulations. No significant impacts would be anticipated.

Approximately 9 acres of landscaping would be installed and could include nonnative and native plantings.

Operations

Operations of the proposed prison reception center facility would not result in significant impacts to plant species. Cleared areas would be maintained by the Department of Corrections to ensure that these areas do not become colonized by invasive plant species.

Wetlands and Surface Water

Construction

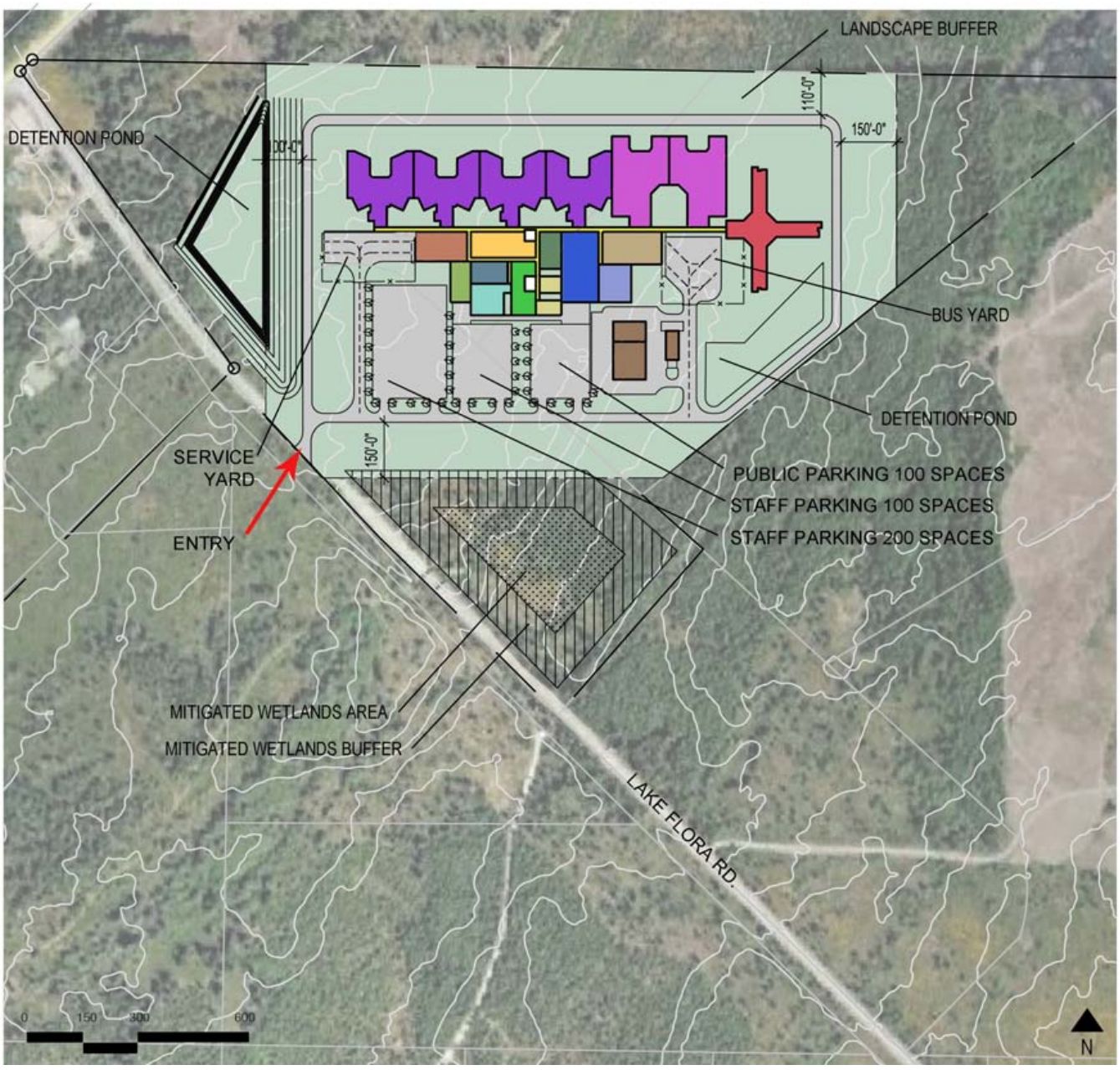
The layout of the proposed prison reception center would unavoidably impact approximately 45,289 sq. ft. of onsite Category III wetlands including Wetlands J, K, L, M, N, O, P, R and S. Development of the proposed prison reception center on the Bremerton Site would not be anticipated to impact Wetlands A through I, Wetland Q, wetland buffers of existing wetlands to remain, the two existing onsite streams or their 35-foot buffers. The overall site was reviewed to determine the location with the least impact to wetlands and no impact to stream systems, as reflected in the current building orientation. Wetlands impacted by the proposed prison reception center are isolated potholes that are not connected via surface water hydrology or hydric soils to other wetland systems proposed to remain on the site or located off of the site. Mitigation for impacts to the wetlands would comply with federal, state and local regulations and would consist of wetland mitigation at a 2:1 ratio, requiring a 90,578 sq. ft. wetland mitigation project. A mitigation area would be proposed on the site, as shown on **Figure 3.3-5**. Design of the wetland mitigation project would provide for at least a Category III, forested and scrub shrub wetland system that would be seasonally inundated.

An off-site sewer utility extension would be required to serve a prison reception center on the Bremerton Site. The offsite sewer line would extend west along SW Lake Flora Road and north along SR 3 to the existing sewage lagoons where the proposed MBR treatment facility would be constructed on Port of Bremerton property. The utility extension would cross a season tributary to a fork of the Union River via an existing roadway and shoulder located above and over the seasonal tributary. With implementation of appropriate erosion control measures, significant impacts to the tributary would not be anticipated.

Construction of the proposed MBR treatment facility in the area adjacent to the existing sewage lagoons would be located outside of the 35-foot buffers of the two nearby seasonal streams and significant impacts to the streams would not be anticipated.

None of the other offsite utility extensions required to serve the prison reception center on the Bremerton Site (water, natural gas, electricity and telecommunications) would be anticipated to impact critical areas.

Without appropriate mitigation, water quality in the onsite and offsite nearby wetlands and streams could be impacted during construction activities. Implementation of temporary erosion and sediment control measures, a stormwater pollution prevention plan and best management practices, during construction would prevent or minimize potential water quality impacts that could occur.



Source: Integrus Architecture, 2011

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Figure 3.3-5
Bremerton Site - Wetland Mitigation Area

Operations

A permanent stormwater control system would be provided as part of the proposed prison reception center development at the Bremerton Site, in accordance with the 2005 Ecology Manual (see Section 3.15, **Utilities**). All stormwater treatment and infiltration would occur outside of the existing wetlands, streams and their associated buffers. The proposed stormwater control system would ensure water quality of surface water features and would not alter the amount of recharge to the onsite wetlands and streams. No significant impacts to wetlands or surface water features would be anticipated.

Animals/Habitat (Non-wetland)

Construction

No endangered, threatened or protected animal species were identified on or in the vicinity of the Bremerton Site or within the proposed utility extension areas; therefore, no impacts to endangered, threatened or protected animal species would be anticipated with development of the proposed prison reception center.

Potential impacts to wildlife species during construction of the proposed prison reception center would likely be caused by both habitat removal and disturbance associated with construction. Development of the proposed prison reception center on the Bremerton Site would result in the total area reduction of wildlife habitat on the site. However, protected species are not anticipated to be impacted and regulated habitats including wetland and streams are proposed to be protected as noted above. Onsite species displaced during construction would be expected to colonize other habitat in the vicinity or potentially return to undisturbed vegetation on the site following construction.

Construction activities on the Bremerton Site would generate increased noise and lighting throughout the two year construction period. These impacts would be temporary and wildlife would likely avoid the site during this period.

Operations

Lighting proposed for the *Westside Prison Reception Center* would include building lighting, walkway lighting and parking lot lighting. External lighting from the proposed prison reception center could potentially disturb nocturnal animal species in the immediate vicinity of the facility. Proposed lighting fixtures would include cut-off luminaries to reduce light spillage to wetland and stream areas.

The preservation of natural areas such as forested areas, wetland and wetland buffers, as discussed previously, would serve as a conservation measure to minimize the impacts of development on wildlife and wildlife habitat. Upon maturation, the approximately nine acres of landscaping installed during construction would provide new habitat for certain species.

Although not required by codes and regulations, to minimize impacts to migratory birds, mature trees should be removed outside of the active nesting season. Mature tree cutting would be anticipated to occur in the late summer, fall or winter.

Mason County Site

Plants

Location of the proposed *Westside Prison Reception Center* on the Mason County Site would occupy approximately 24 acres (approximately 48 percent of the 50 acre site) consisting of buildings, surface parking, access drives and service/bus yard. Open space/landscaping would comprise an additional 9 acres in landscaping and 10 acres in open space (approximately 38 percent of the site). In total, development of the new *Westside Prison Reception Center* at this site would result in the conversion of approximately 43 acres (86 percent of the site) of vegetated area to a governmental/institutional use (including associated landscaping and open space). The remaining 7 acres (14 percent of the site) would remain in natural vegetation.

A utility extension would be required to provide services to the proposed *Westside Prison Reception Center* along SR 102 east to the Washington State Patrol Academy (see Section 3.15, **Utilities**, for more information). No significant to protected, threatened or endangered plant species would be anticipated.

Construction

No endangered, threatened or protected plant species were identified on or in the vicinity of the Mason County Site; therefore, no impacts to endangered, threatened or protected plant species would be anticipated with development of the proposed prison reception center on this site.

Clearing and grading at the Mason County Site would require removal of the majority of the existing forest and understory vegetation. Clearing, grading and removal of vegetation and trees would comply with applicable regulations. No significant impacts would be anticipated.

Approximately 9 acres of landscaping would be installed and could include nonnative and native plantings.

Operations

Operations of the proposed prison reception center facility at the Mason County Site would not result in significant impacts to plant species. Cleared areas would be maintained by the Department of Corrections to ensure that these areas do not become colonized by invasive plant species.

Wetlands and Surface Water

Construction

The layout of the proposed prison reception center at the Mason County Site and the utility corridor along SR 102 would be designed to avoid direct impacts to the onsite Category I wetland, its assumed 200 foot buffer and the offsite Goldborough Creek. Development of the prison reception center at the Mason County Site would require grading of the site area outside of the wetland and associated wetland buffer area. Direct impacts to wetlands and associated buffers are not anticipated during construction.

Without appropriate mitigation, water quality in the onsite wetlands and offsite Goldsborough Creek could be impacted during construction activities. Implementation of temporary erosion and sediment control measures, a stormwater pollution prevention plan and best management practices, during construction would prevent or minimize potential water quality impacts that could occur.

No impacts to wetlands or surface water features would be anticipated with regard to off-site utility line extensions.

Operations

A permanent stormwater control system would be provided as part of the proposed prison reception center development at the Mason County Site, in accordance with the 2005 Ecology Manual. All stormwater treatment and infiltration would occur outside of the onsite wetland and its 200 foot wetland buffer. The proposed stormwater control system would ensure water quality of surface water features and would not alter the amount of recharge to the onsite wetlands and Goldsborough Creek. No significant impacts to wetlands or surface water features would be anticipated.

Animals/Habitat (Non-wetland)

Construction

No endangered, threatened or protected animal species were identified on or in the vicinity of the Mason County Site or within the proposed utility corridor; therefore, no impacts to endangered, threatened or protected animal species would be anticipated with development of the proposed prison reception center. Due to the distance between the Mason County Site and the offsite Shelton Pocket Gopher-Mazama habitat and Streaked Horned Lark nest areas near Shelton Airport; no significant impacts to these offsite resources would be anticipated.

Potential impacts to wildlife species during construction of the proposed prison reception center would likely be caused by both habitat removal and disturbance associated with construction. Development of the proposed prison reception center on the Mason County Site would result in the total area reduction of wildlife habitat on the site. However, protected species are not anticipated to be impacted and regulated habitats including wetland and streams are proposed to be protected. Impacts to fisheries resources downstream of the site during or after construction in Goldsborough Creek are not anticipated. Onsite species displaced during

construction would be expected to colonize other habitat in the vicinity or potentially return to undisturbed vegetation on the site following construction.

Construction activities would generate increased noise and lighting throughout the two year construction period. These impacts would be temporary and wildlife would likely avoid the site during this period.

Operations

Lighting proposed for the *Westside Prison Reception Center* would include building lighting, walkway lighting and parking lot lighting. External lighting from the proposed prison reception center could potentially disturb nocturnal animal species in the immediate vicinity of the facility. Proposed lighting fixtures would include cut-off luminaries to reduce light spillage to wetland and stream areas.

The preservation of natural areas such as forested areas, wetland and wetland buffers, as discussed previously, would serve as a conservation measure to minimize the impacts of development on wildlife and wildlife habitat. Upon maturation, the approximately 9 acres of landscaping installed during construction would provide new habitat for certain species.

Although not required by codes and regulations, to minimize impacts to migratory birds, trees should be removed outside of the active nesting season. Mature tree cutting would be anticipated to occur in the late summer, fall or winter.

Thurston County Site

Plants

Location of the proposed *Westside Prison Reception Center* on the Thurston County Site would occur in the northern currently developed 55-acre portion of the site. Approximately 25 acres (approximately 12 percent of the 209 acre site) would consist of buildings, surface parking, access drives and service/bus yard. Open space/landscaping would comprise an additional 10 acres (approximately 5 percent of the site). Approximately 20 acres of the existing Maple Lane Juvenile Detention Facility would remain (primarily in the area west of the existing maple tree-lined main access road). Development of the new *Westside Prison Reception Center* at this site would result in the intensification of the existing governmental/institutional use. The 155-acre southern portion of the site (74 percent of the site) would remain undeveloped.

Offsite utility extensions would be required to serve the prison reception center on the Thurston County Site (see Section 3.15, **Utilities**, for details). No significant impacts to protected, threatened or endangered plant species would be anticipated.

Construction

Because the portion of the Thurston County Site proposed for the prison reception center use is currently developed, natural vegetated area would not be impacted by construction. However, clearing and grading at the Thurston County Site would require the removal of 22 mature fir trees and 50 deciduous trees including maple, fruit trees, and landscape trees around existing buildings, mowed lawn and landscape beds The four onsite protected Oregon white oak trees

are not proposed to be impacted. Clearing, grading and removal of vegetation and mature trees would comply with applicable regulations. Although not required by codes and regulations to minimize impacts to migratory birds, mature trees to be removed would be cut down outside of the active nesting season. Mature tree cutting would be anticipated to occur in the late summer, fall or winter. No significant impacts would be anticipated.

Approximately 9 acres of landscaping would be installed and could include nonnative and native plantings.

No other endangered, threatened or protected plant species were identified on or in the vicinity of the site or within the utility corridor; therefore, no impacts to endangered, threatened or protected plant species would be anticipated with development of the proposed prison reception center on the Thurston County Site.

Operations

Operations of the proposed prison reception center facility on the Thurston County Site would not result in significant impacts to plant species. Cleared areas would be maintained by the Department of Corrections to ensure that these areas do not become colonized by invasive plant species.

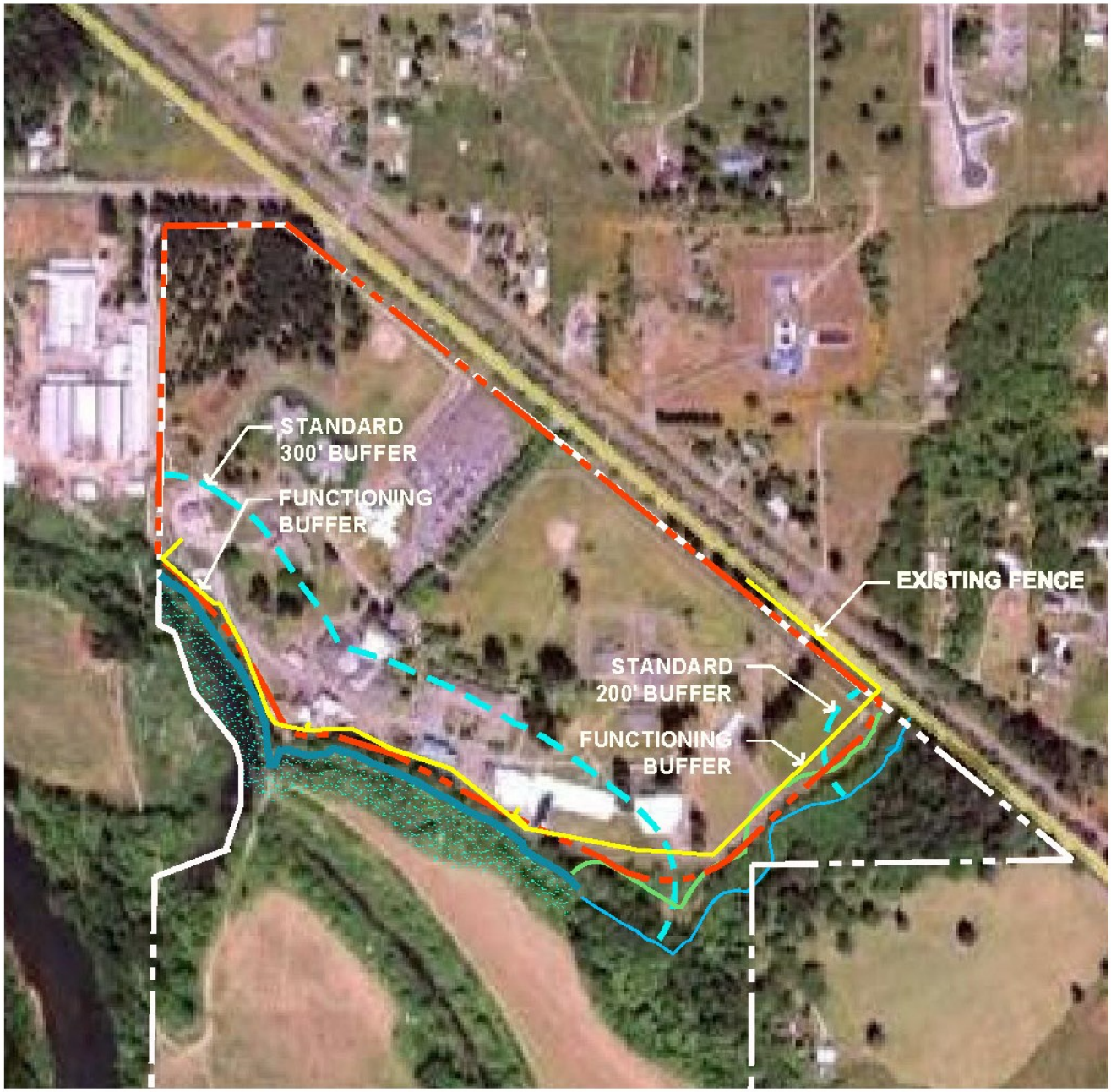
Wetlands and Surface Water

Construction

The layout of the proposed prison reception center on the Thurston County Site would be designed to avoid direct impacts to Wetland A, Wetland B and Prairie Creek and surface water features in the southern, undeveloped portion of the site.

As shown on **Figure 3.3-6,** the functioning wetland buffer (i.e., natural area south and east of the existing fence and perimeter road) is not proposed to be impacted by development of the proposed prison reception center on the site, although some construction activities would occur within the non-functional buffer areas. Thurston County Code 17.15.940 describes "functioning wetland buffer" as follows:

> *"The review authority may reduce the standard wetland buffer for those areas which are functionally separated from a wetland and do not protect the wetland from adverse impacts due to a pre-existing road, structure or vertical separation. This provision shall not apply to a logging road constructed with or without a forest practices permit, or to any road or structure constructed in violation of this chapter."*



Source: AHBL, 2011

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Figure 3.3-6
Thurston County Site - Wetlands, Habitat and Surface Water Features and Functional Buffers

Thurston County Code requires a 100-foot buffer for Prairie Creek; a 200 foot-buffer for Wetland A and a 300 foot-buffer for Wetland B. A portion of all of these buffers extend onto the Thurston County Site. Both wetland buffers contain structures within the onsite buffer area, including the 12-foot tall perimeter fence, the paved 10-foot wide perimeter access road, existing classrooms, gymnasium, bus barn, boiler room, carpentry and paint buildings, commissary, water tank, pump house, paved sidewalks, other accessory buildings and portions of the administration building, maintenance building, Birch Housing Unit, soccer field, garage, laundry, and food services buildings. These structures functionally separate the wetlands from the standard code required buffer area. Development of the proposed prison reception center at the Thurston County site would require the wetland buffers to be reduced to parallel the edge of the perimeter fence, as shown on **Figure 3.3-6**. Development activities associated with the prison reception center at the Thurston County Site would not be assumed to impact the wetland buffer area outside of the perimeter fence.

The existing sewer pump station and associated vault located in the Wetland B reduced buffer may be modified to support development of the prison reception center at the Thurston County Site; although it may be possible to alter the pumping rate rather than expand the existing facility. At this time, exact impacts to the wetland buffer are unknown but it is anticipated that the facility may need to be doubled in size; therefore, would impact roughly 200 sq. ft. of wetland buffer. If impacts to the wetland buffer occur due to upgrades to the sewer pump station facility, mitigation would be provided in accordance with the Thurston County Code.

An off-site water utility extension would be required to serve the prison reception center on the Thurston County Site. The offsite water line alignment would extend from the site entrance southeast on Old Highway 9 to Old Highway 99. The water utility extension would cross Prairie Creek via the existing bridge or within the existing road and shoulder. With implementation of appropriate erosion construal measures, significant impacts to Prairie Creek would not be anticipated.

The other offsite utility extensions required to serve the prison reception center at the Thurston County Site (sewer, natural gas, electricity and telecommunications) would not be anticipated to impact any critical areas.

Without appropriate mitigation, water quality in the nearby wetlands, Prairie Creek and the Chehalis River could be impacted during construction activities associated with the facility and utility extensions. Implementation of temporary erosion control plan, a stormwater pollution prevention plan and sediment control measures and best management practices, during construction would prevent or minimize potential water quality impacts that could occur.

Operations

A permanent stormwater control system would be provided as part of the proposed prison reception center development at the Thurston County Site, in accordance with the 2005 Ecology Manual. All stormwater treatment and infiltration would occur outside of the onsite wetlands and their wetland buffers. The proposed stormwater control system would ensure water quality of surface water features and would not alter the amount of recharge to the nearby wetlands, Prairie Creek and the Chehalis River.

Animals/Habitat (Non-wetland)

Construction

No endangered, threatened or protected animal species were identified on or in the vicinity of the Thurston County Site; therefore, no impacts to endangered, threatened or protected animal species would be anticipated with development of the proposed prison reception center or utility extensions.

Potential impacts to wildlife species during construction of the proposed prison reception center would likely be caused by both habitat removal and disturbance associated with construction. The proposed development on the Thurston County Site would require the removal of a total of 72 trees (22 evergreen and 50 deciduous trees) associated with the Maple Lane Juvenile Detention Facility which would impact species that use these trees for roosting, nesting, feeding or cover. However, protected animal species are not anticipated to be impacted and regulated habitats including wetland and streams are proposed to be protected during and after construction. Onsite species displaced during construction would be expected to colonize other habitat in the vicinity or potentially return to undisturbed vegetation on the site following construction.

Construction activities would generate increased noise and lighting throughout the two year construction period; however, there is currently a moderate level of lighting on the site from the operations of the Maple Lane Juvenile Detention facility. Lighting and noise impacts associated with construction would be temporary and wildlife would likely avoid the site during this period.

Implementation of temporary sediment control measures and best management practices would be anticipated to reduce the potential for impacts to fish species in Prairie Creek or Wetland B during construction activities.

Operations

External lighting from the proposed prison reception center would be similar to the existing lighting levels on the site; additional lighting impacts to animal species would not be anticipated. Proposed lighting fixtures would include cut-off luminaries to reduce light spillage to wetland and stream areas.

The preservation of natural areas such as forested areas, wetland and wetland buffers, as discussed previously, would serve as a conservation measure to minimize the impacts of development.

Although not required by codes and regulations, to minimize impacts to migratory birds, mature trees would be removed outside of the active nesting season. Mature tree cutting would be anticipated to occur in the late summer, fall or winter.

Summary of the Three Site Alternatives

Both the Bremerton and Mason County Sites are currently undeveloped and the proposed development of the *Westside Prison Reception Center* on those sites would require the removal of the majority of the trees and vegetation on the sites. The Thurston County Site is already developed and the proposed development on the site would require less vegetation removal. Removal of vegetation on any of the three sites would not be anticipated to impact protected, threatened or endangered plant species; no significant impacts to plant habitat would be anticipated.

Wetlands or streams are located on or in the vicinity of all three sites. At the Bremerton Site, development of the prison reception center would require approximately 45,289 sq. ft. of onsite Category III wetlands to be filled and development of an approximately 90,578 sq. ft. onsite wetland mitigation area; with implementation of the proposed mitigation, no significant impacts would be anticipated. The proposed development would not be anticipated to impact Wetlands A through I or Q, or wetland buffers of existing wetlands to remain, the two existing onsite streams or their 35-foot buffers. Utility extensions to serve the Bremerton Site would include the crossing of a seasonal tributary via an existing roadway; with implementation of identified mitigation measures, significant impacts are not anticipated. At the Mason County Site, no impacts to onsite or offsite adjacent wetlands, Goldsborough Creek or their associated buffers would be anticipated with development of the facility or the proposed utility extensions. At the Thurston County Site, no impacts to the offsite Wetlands A and B, Prairie Creek, the Chehalis River or the functional buffers of these features would be anticipated. Development of the utility extensions to serve the prison reception center on the Thurston County Site would require crossing Prairie Creek via the existing bridge or within the existing road and shoulder; with implementation of appropriate erosion control measures, significant impacts to Prairie Creek would not be anticipated.

With the removal of the majority of vegetation on the Bremerton and Mason County Sites, the amount of habitat on the sites would be significantly reduced. Animal species currently located on the site or in the area would be anticipated to relocate to other existing habitat in the area. As the Thurston County Site has been previously developed, the amount of habitat removed would be significantly less than the other two sites. Reduction in onsite habitat on any of the three sites would not be anticipated to impacted protected, threatened or endangered animal species; no significant impacts would be anticipated.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the ***Westside Prison Reception Center*** would not be built at any of the site alternatives but the increased demand for additional long-term prison space would remain. Potential impacts to plants, animals, habitat and surface waters associated with the No Action Alternative would be as follows:

1. **Site Alternatives** – Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be

subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts to plants, animals, habitat and surface waters resulting from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in new impacts to plants, animals, habitat and surface waters.

3. **Additional Long-Term Incarceration Capabilities** – Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for space as well as the displaced long-term prison space displaced at the WCC by increased prison reception center uses. Depending on the location of the additional long-term incarceration facilities, construction and operations could result in impacts to plants, animals, habitat and surface waters. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts.

3.3.3 Mitigation Measures

All Sites

- Clearing, grading, demolition and significant tree removal would comply with applicable regulations of each jurisdiction.

- A temporary erosion control plan, stormwater pollution prevention plan, as well as best management practices would be implemented during construction to control erosion and sedimentation impacts on water resources, per applicable requirements, for both onsite and off-site (utility line extensions) construction projects.

- Permanent water quality treatment and stormwater management systems are proposed and would be designed to maintain hydrologic support to wetlands and streams near the sites.

- The site plans of the proposed prison reception center would be designed to avoid direct impacts to wetlands, streams and their buffers, to the extent feasible.

- Landscaping would be installed and would include non-native plantings as well as native plantings that would provide wildlife habitat.

- New open space and landscape area would be maintained by the Department of Corrections to ensure that these areas do not become colonized by invasive plant species.

- Lighting would include cut-off luminaries to reduce light spillage to wetlands and streams located on and near the sites.

- Although not required by codes and regulations to minimize impacts to migratory birds, trees to be removed could be cut down outside of the active nesting season. Tree cutting is anticipated to occur in the late summer, fall or winter.

Bremerton Site

- Construction of the facility would unavoidably impact 45,289 sq. ft. of Category III wetland including Wetlands J, K, L, M, N, O, P, S, and R**.** Mitigation required for unavoidable impacts to the wetlands on the Bremerton Site would require acquisition of a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers, and Clean Water Act Section 401 permit from the Washington State Department of Ecology, and City of Bremerton permits. Up to 90,578 sq. ft of new wetland area would be provided on the site to compensate for impacted existing wetlands.

Mason County Site

- The 1.9 acre wetland located on the site would be protected with a Mason County code-required 200-foot buffer with signs posted at the perimeter of the buffer as required by Mason County Code. A total of 12.2 acres of wetland and buffer would be protected.

Thurston County Site

- As required by Thurston County, the four Oregon White Oak trees located on the site would be protected during and after construction of the proposed project.

- If the existing sewer pump station and associated vault located in the Wetland B reduced buffer area is required to be modified to support development of the prison reception center at the Thurston County Site; impacts to the wetland buffer would be mitigated in accordance with the Thurston County Code.

3.3.4 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts would be anticipated at the Mason County or Thurston County Sites.

Development of the proposed *Westside Prison Reception Center* on the Bremerton Site would unavoidably impact approximately 45,289 sq. ft. of Category III Wetlands (per BMC 20.14.320). Mitigation in accordance with federal, state and location regulations is proposed. With implementation of the proposed mitigation, no significant impacts would be anticipated.

3.4 ENERGY (Greenhouse Gas Emissions)

Global climate change is a change in the average weather of the earth, which can be measured by wind patterns, storms, precipitation and temperature. The following section, which is based on information prepared by ENVIRON International Corporation and EA | Blumen, provides a qualitative discussion of the potential impacts of the alternatives on global climate change in terms of greenhouse gas emissions (GHG) estimates. The worksheets calculating GHG estimates for each of the three sites are contained in **Appendix D** of this Draft EIS.

3.4.1 Affected Environment

The global climate is continuously changing, as evidenced by repeated episodes of warming and cooling documented in the geologic record. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. Scientists have observed, however, an unprecedented increase in the rate of warming in the past 150 years. This recent warming has coincided with the Industrial Revolution, which resulted in widespread deforestation to accommodate development and agriculture and an increase in the use of fossil fuels, which has released substantial amounts of GHG into the atmosphere.

GHG, such as carbon dioxide, methane, and nitrous oxide are emitted by both natural processes and human activities and trap heat in the atmosphere. The accumulation of GHG in the atmosphere affects the earth's temperature. While research has shown that the Earth's climate has natural warming and cooling cycles, evidence indicates that human activity has elevated the concentration of GHG in the atmosphere beyond the level of naturally- occurring concentrations resulting in more heat being held within the atmosphere. The Intergovernmental Panel on Climate Change (IPCC), an international group of scientists from 130 governments, has concluded that it is "very likely" - a probability listed at more than 90 percent - that human activities and fossil fuels explain most of the warming over the past 50 years."[1]

The IPCC predicts that under current human GHG emission trends, the following results could be realized within the next 100 years:[2]

- global temperature increases between 1.1 – 6.4 degrees Celsius;
- potential sea level rise between 18 to 59 centimeters or 7 to 22 inches;
- reduction in snow cover and sea ice;
- potential for more intense and frequent heat waves, tropical cycles and heavy precipitation; and,
- impacts to biodiversity, drinking water and food supplies.

The Climate Impacts Group (CIG), a Washington-state based interdisciplinary research group that collaborates with federal, state, local, tribal, and private agencies, organizations, and businesses, studies impacts of natural climate variability and global climate change on the

1 IPCC, Fourth Assessment Report, February 2, 2007.
2 IPCC, Summary for Policymakers, April 30, 2007.

Pacific Northwest. CIG research and modeling indicates the following possible impacts of human-based climate change in the Pacific Northwest:[3]

- changes in water resources, such as decreased snowpack; earlier snowmelt; decreased water for irrigation, fish and summertime hydropower production; increased conflict over water; increased urban demand for water.
- changes in salmon migration and reproduction.
- changes in forest growth and species diversity and increases in forest fires; and
- changes along coasts, such as increased coastal erosion and beach loss due to rising sea levels; increased landslides due to increased winter rainfall, permanent inundation in some areas; and increased coastal flooding due to sea level rise and increased winter streamflow.

Regulatory Context

United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is charged with enforcing the Clean Air Act and has established air quality standards for common pollutants. In addition, on September 15, 2009, the EPA issued a joint proposal with the Department of Transportation's Highway Traffic Safety Administration to set emissions standards for passenger cars, light-duty trucks, and medium-duty passenger vehicles.

On May 13, 2010, the EPA released final regulations establishing GHG emissions thresholds for new and existing industrial facilities that define when permitting under Clean Air Act (CAA) programs is necessary. Covered facilities include the nation's largest GHG emitters such as power plants, refineries and cement production. Individual development projects, such as the alternatives discussed in this Draft EIS, are not subject to these regulations.

Western Regional Climate Action Initiative

On February 26, 2007, the Governors of Arizona, California, New Mexico, Oregon and Washington signed the Western Climate Initiative (WCI) to develop regional strategies to address climate change. WCI is identifying, evaluating and implementing collective and cooperative ways to reduce GHG emissions in the region. Subsequent to this original agreement, the Governors of Utah and Montana, as well as the Premiers of British Columbia and Manitoba joined the Initiative. The WCI objectives include setting an overall regional reduction goal for GHG emissions, developing a design to achieve the goal and participating in The Climate Registry, a multi-state registry to enable tracking, management, and crediting for entities that reduce their GHG emissions.

On September 23, 2008, the WCI released their final design recommendations for a regional cap-and-trade program. This program would cover GHG emissions from electricity generation, industrial and commercial fossil fuel combustion, industrial process emissions, gas and diesel consumption for transportation, and residential fuel use. The first phase of the program, which will regulate electricity emissions and some industrial emission sources, is to begin January 1, 2012.

[3] Climate Impacts Group, Climate Impacts in Brief, http://www.cses.washington.edu/cig/pnwc/ci.shtml.

State of Washington

In February of 2007, Executive Order No. 07-02 was signed by the Governor establishing goals for Washington regarding reductions in climate pollution, increases in jobs, and reductions in expenditures on imported fuel.[4] This Executive Order established Washington's goals for reducing GHG emissions as the following: to reach 1990 levels by 2020, 25 percent below 1990 levels by 2035 and 50 percent below 1990 levels by 2050. This order was intended to address climate change, grow the clean energy economy and move Washington toward energy independence.

In 2007, the Washington legislature passed SB 6001, which among other things, adopted the Executive Order No. 07-02 goals into statute.

In 2008, the Washington Legislature built on SB 6001 by passing E2SHB 2815, the Greenhouse Gas Emissions Bill. While SB 6001 set targets to reduce emissions, the E2SHB 2815 made those state-wide requirements (see RCW 70.235.020) and directed the state to submit a comprehensive GHG reduction plan to the Legislature by December 1, 2008. As part of the plan, the Department of Ecology was mandated to develop a system for reporting and monitoring GHG emissions within the state and a design for a regional multi-sector, market-based system to reduce statewide GHG emissions consistent with the requirements in RCW 70.235.020.

In 2008,[5] the Department of Ecology issued a memorandum stating that climate change and GHG emissions should be included in all State Environmental Policy Act (SEPA) analyses and committed to providing further clarification and analysis tools. No regulatory guidance regarding thresholds for significance has been issued to date, however.

In 2009, Executive Order 09-05 was signed ordering Washington State agencies to reduce climate-changing GHG emissions, to increase transportation and fuel-conservation options for Washington residents, and protect the State's water supplies and coastal areas. The Executive Order directs state agencies to develop a regional emissions reduction program; develop emission reduction strategies and industry emissions benchmarks to make sure 2020 reduction targets are met; work on low-carbon fuel standards or alternative requirements to reduce carbon emissions from the transportation sector; address rising sea levels and the risks to water supplies; and, increase transit options, such as buses, light rail, and ride-share programs, and give Washington residents more choices for reducing the effect of transportation emissions.

On December 1, 2010, the Department of Ecology adopted Chapter 173-441 WAC – *Reporting of Emission of Greenhouse Gases*. This rule aligns the State's GHG reporting requirements with EPA regulations, and requires facilities and transportation fuel suppliers that emit 10,000 metric tons carbon dioxide equivalents ($MTCO_2e$) or more per year, to report their GHG emissions to Ecology. Requirements for reporting are to begin on January 1, 2012.

City of Bremerton

The City of Bremerton has not yet established GHG analysis requirements as part of its SEPA process for development projects. The City of Bremerton plans to work with the City of Seattle

[4] http://www.governor.wa.gov/execorders/eo_07-02.pdf

[5] Manning, Jay. RE: Climate Change - SEPA Environmental Review of Proposals, April 30, 2008.

and King County to adapt their spreadsheet tool and their existing policies into its jurisdictional SEPA environmental review process as part of the SKIA Master Planning Process.

Mason County

Mason County currently has no additional regulations in place that require reporting of GHG emissions or evaluation of climate change impacts as part of the SEPA review process.

Thurston County

Thurston County currently has no additional regulations in place that require reporting of GHG emissions or evaluation of climate change impacts as part of the SEPA review process.

3.4.2 Impacts

The following analysis estimates the GHG emissions associated with the three proposed *Westside Prison Reception Center* site alternatives. The emissions estimates are not adjusted to account for any mitigation factors incorporated into the site design, such as LEED Certification or the use of sustainable materials.

The scale of global climate change is so large that a project's impacts can only be considered on a "cumulative" scale. It is not anticipated that a single development project would have an individually discernable impact on global climate change. It is more appropriate to conclude that the *Westside Prison Reception Center* GHG emissions would combine with emissions across the state, country and planet to cumulatively contribute to global climate change.

Methodology

The SEPA Greenhouse Gas Emissions Worksheet, originally developed by King County, calculates greenhouse gas emissions for the lifecycle of a development including:

- **Embodied Emissions** – The extraction, processing, transportation, construction and disposal of materials and landscape disturbance;
- **Energy-related Emissions** – Energy demands created by the development after it is completed; and,
- **Transportation-related Emissions** – Transportation demands created by the development after it is completed.

Worksheets pertaining to each site alternative are contained in **Appendix D** of this Draft EIS.

For this Draft EIS analysis, the basic methodology of the Greenhouse Gas Emissions Worksheet was used to calculate the embodied and energy-related emissions associated with the *Westside Prison Reception Center*; however, embodied emissions estimates were tailored to account for specific building assumptions (i.e., building materials, foundation type, etc.). These emissions were calculated by allocating the assumed square footage of the proposed *Westside Prison Reception Center* facility to the "Public Order and Safety" land use category; the Bus Barn use was categorized as "Vacant". An alternate methodology was used to calculate the transportation-related emissions, as explained below.

Transportation-Related Emissions Methodology

For this analysis, vehicle-miles traveled (VMT) estimates were used as an alternative to the standard transportation-related emissions methodology of the Greenhouse Gas Emissions Worksheet. VMT is a common measure in transportation that reflects the number of miles driven in vehicles over a given period of time. Estimates of annual VMT were prepared for employees and transport trips, since these are the two largest generators of daily traffic. To estimate VMT for reception center employees, travel distances (in miles) to the sites were determined using the project trip distribution patterns (See Section 3.13, **Transportation**, for more information). Estimates of VMT for transport trips were based on detailed transport schedule information provided by the DOC that reflects existing routes serving the WCC. The total VMT for all employee and transport trips were calculated and summed to determine a total daily VMT estimate for the trips made to and from the site. The daily VMT estimate was factored to estimate an annual VMT.

The assumptions regarding gallons of gasoline consumed per vehicle mile traveled (0.0489 gallons) and pounds of $C0_2e$ per gallon of gasoline (20.4 pounds) are detailed in **Appendix D**.

Proposed Actions

As described in **Chapter 2** of this Draft EIS, the proposed *Westside Prison Reception Center* project would include siting, construction and operation of a prison reception center. The proposed *Westside Prison Reception Center* would contain approximately 356,000 sq. ft. of area, 1,024 beds, various reception center services, accommodate a staff of 478, and provide parking for up to 400 vehicles.

The Washington State Department of Corrections is committed to making both its operations and facilities more sustainable. The DOC's sustainability goals include[6]:

- Reduce dependence on non-renewable energy and fuel sources
- Reduce potable water use
- Reduce waste
- Reduce use of toxic materials
- Increase the sustainability of facilities
- Increase the Department's commitment to and employee awareness of sustainability

The DOC collects data on and monitors resource consumption to develop solutions to meet sustainability goals. All 12 existing prisons in the DOC system submit sustainability data to the staff sustainability coordinator on a quarterly basis. Data includes information on energy, fuel, water and paper use, wastewater discharge, solid waste and hazardous waste disposal, recycling and composting. This data is used to monitor DOC goals and refine sustainability practices. It is anticipated that similar practices would be integrated into the *Westside Prison Reception Center* facility operations in order to reduce environmental impacts.

[6] Washington State Department of Corrections 2009 Sustainability Progress Report.

Bremerton Site

The total lifespan GHG emissions for the Bremerton Site are estimated at 508,254 $MTCO_2e$ (**Table 3.4-1**).[7] As demonstrated, the greatest share of the emissions would be generated by associated transportation activities, as well as the energy consumed to operate the new prison reception center facilities.

Table 3.4-1
BREMERTON SITE - ESTIMATED GREENHOUSE GAS EMISSIONS

	Sq. Ft. (in thousands of sq. ft.) or VMT[1]	Embodied	Energy	Lifespan Emissions
Public Order and Safety (1-story support area)	147 sq. ft.	588	132,153	132,521
Public Order and Safety (2-story secured housing area)	209 sq. ft.	627	187,891	188,833
Vacant (Bus Barn)	9.9 sq. ft.	19.8	1603.8	1,626
Pavement – Parking Lots	370.40 sq. ft.			6,297
Transportation	6,329,200 VMT			178,978
TOTAL				**508,254**

Source: Environ, 2011.
[1] VMT: Vehicle Miles Traveled

Mason County Site

The total lifespan GHG emissions for the Mason County Site are estimated at 520,703 $MTCO_2e$ (**Table 3.4-2**).[8] The greatest share of the emissions would be generated by transportation activities, as well as the energy consumed to operate the new prison reception center facilities. At the Mason County Site, bus barn bus barn functions would be accommodated by the existing bus barn facilities located at the nearby Washington Correctional Center (WCC), and no bus facility would need to be built at this location.

[7] $MTCO_2e$ is defined as Metric Tonne Carbon Dioxide Equivalent; equates to 2204.62 pounds of CO2. This is a standard measure of amount of CO2 emissions reduced or sequestered. Carbon is not the same as Carbon Dioxide. Sequestering 3.67 tons of CO2 is equivalent to sequester one ton of carbon.

[8] Ibid.

Table 3.4-2
MASON COUNTY SITE - ESTIMATED GREENHOUSE GAS EMISSIONS

	Sq. Ft. (in thousands of sq. ft.) or VMT[1]	Embodied	Energy	Lifespan Emissions
Public Order and Safety (1-story support area)	147 sq. ft.	588	132,153	132,521
Public Order and Safety (2-story secured housing area)	209 sq. ft.	627	187,891	188,833
Vacant (Bus Barn)[2]	0.0	--	--	--
Pavement – Parking Lots	331.20 sq. ft.			5,630
Transportation	6,850,470 VMT			193,719
TOTAL				**520,703**

Source: Environ, 2011.
[1] VMT: Vehicle Miles Traveled

Thurston County Site

For the Thurston County Site, certain existing buildings would be demolished, and others would be retained and renovated for DOC use. As well, a new prison reception center building (approximately 326,144 sq. ft.) would be built to house the main program components including support areas and offender housing. Approximately 30,000 sq. ft. of existing building space and the existing approximately 10,000 sq. ft. bus barn would be remodeled and reused. The GHG calculations for this site account for the embodied GHG emissions savings from the reduction in building materials required to re-purpose these buildings versus new construction. Energy emissions from these repurposed buildings are also included in the analysis. The total lifespan GHG emissions for the Thurston County Site are estimated at 495,437 $MTCO_2e$.[9] As demonstrated, the greatest share of the emissions would be generated by associated transportation activities, as well as the energy consumed to operate the new prison reception center facilities.

[9] Ibid.

Table 3.4-3
THURSTON COUNTY SITE -
ESTIMATED GREENHOUSE GAS EMISSIONS

	Sq. Ft. (in thousands of sq. ft.) or VMT[1]	Embodied	Energy	Lifespan Emissions
Public Order and Safety (1-story support area)	147 sq. ft.	588	132,153	132,453
Public Order and Safety (2-story secured housing area)	209 sq. ft.	627	187,891	188,833
Vacant (Bus Barn)	9.9 sq. ft.	19.8	1603.8	1,626
Pavement – Parking Lots	370.40 sq. ft.			6,297
Transportation	5,878,340 VMT			166,229
TOTAL				**495,437**

Source: Environ, 2011.
[1] VMT: Vehicle Miles Traveled

Summary of the Three Site Alternatives

Table 3.4-4 compares the GHG emissions estimates for the three sites. As demonstrated, development of the *Westside Prison Reception Center* facility is anticipated to result in the highest levels of GHG emissions at the Mason County Site (520,703 MTCO2e), and the lowest levels at the Thurston County Site (495,437 MTCO2e). In general, embodied and energy GHG emissions estimates are similar for all three site alternatives, while transportation emissions vary from site to site due to their respective locations. Mason County has the highest estimated VMT, which accounts for the site's comparatively greater GHG emissions estimates.

Table 3.4-4
SITE COMPARISON OF ESTIMATED GREENHOUSE GAS EMISSIONS

Site	Total Square Feet of Development	Embodied GHG Emissions (MTCO2e)[1]	Energy-Related GHG Emissions (MTCO2e)[1]	Pavement Emissions	Transportation Emissions	Total Estimated Emissions (MTCO2e)[3]
Bremerton	374,900[1]	1,234.8	321,647.8	6,297	178,978	508,254
Mason County	356,000	1,215.0	320,044	5,630	193,719	520,703
Thurston County	365,900[2]	1,234.8	323,271	6,297	166,229	495,437

Source: Environ, 2011.
[1] Building development square footage for the Mason County Site is lower than for the Bremerton and Thurston County Sites because no bus barn would be provided.
[2] Approximately 326,144 sq. ft. of new development is proposed on the Thurston County Site and approximately 30,000 sq. ft. of building area would be remodeled and reused.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives, but the increased demand for additional long-term prison space would remain. Potential GHG impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** – Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential GHG emissions impacts from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in new GHG-related impacts.

3. **Additional Long-Term Incarceration Capabilities** – Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for space as well as the displaced long-term prison space at the WCC due to increased prison reception center uses. Depending on the location and type of development, the additional long-term incarceration facilities could result in additional GHG emissions-related impacts. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address GHG impacts.

3.4.3 Mitigation Measures

All Sites

A variety of mitigation measures are available to reduce energy use, increase sustainable building design and reduce GHG emissions. It is likely that numerous features would be incorporated into the project design to, among other things, conserve energy and reduce GHG emissions. Specific mitigation measures would include the following:

- The *Westside Prison Reception Center* development would comply with applicable local and state energy code requirements.

- The proposed prison reception center facility would obtain a LEED Silver rating, at minimum.

- Established DOC sustainability goals would be a consideration in the facility design and operations.

3.4.4 Significant Unavoidable Adverse Impacts

Declaring the impacts of climate change and GHG emissions significant or not significant implies an ability to measure incremental effects of global climate change. Scientific research and analysis tools sufficient to determine a numerical threshold of significance have not been established at this time and conclusions would be speculative. However, further information on the potential cumulative impact of GHG emissions is not considered essential to a reasoned choice among the alternatives in this Draft EIS.

3.5 ENVIRONMENTAL HEALTH

This section describes existing contaminated site conditions and/or hazardous materials on and in the vicinity of each of the three site alternatives. Potential impacts related to contaminated site conditions/hazardous materials with construction and operation of the proposed *Westside Prison Reception Center* are also analyzed. This is based on the *Environmental Site Assessment Report* by EHSI, Inc., which is included in **Appendix F** to this Draft EIS. Topography and groundwater information is based on the *Geotechnical Consulting Services Report* by GeoEngineers, which is included in **Appendix B** to this Draft EIS.

Overview of Environmental Regulations and Procedures

Characterization of existing site conditions as they relate to environmental health, and the need for any future cleanup activities at the three *Westside Prison Reception Center* site alternatives were assessed in accordance with applicable local, state and federal regulations, including the Model Toxics Control Act (MTCA; WAC 173-340), which is managed by the Washington Department of Ecology (Ecology).

MTCA regulations define types and levels of contamination that are harmful to human health; provide guidelines for evaluation and investigation of potential contamination; and, specify appropriate cleanup levels and methods for cleanup actions involving soil, groundwater and media other than sediment. Under MTCA regulations, all cleanups must meet certain minimum requirements, including: compliance with cleanup standards; compliance with applicable state and federal laws; protecting human health and the environment; provision for compliance monitoring; use of permanent solutions to the maximum extent practical; provision for a reasonable restoration time frame; and, consideration of public concerns (see **Appendix F** to this Draft EIS for details on MTCA).

3.5.1 Affected Environment

This section provides a description of present and historic uses, as well as known contaminated site conditions and hazardous materials, for each of the three site alternatives associated with the proposed *Westside Prison Reception Center*.

Bremerton Site

Physical Setting and Existing Uses

The Bremerton Site is located in the South Kitsap Industrial Area (SKIA) of Bremerton and is immediately southwest of the Bremerton National Airport. The site is currently undeveloped and vegetated with brush and mature trees.

The topography of the site is generally rolling with several ridges, swales and localized depressions. The site primarily slopes from about 460 feet near the southeast corner of the site to about 325 feet near the northwest corner of the site.

Static ground water elevations within the site are typically 55 to 75 feet below the existing ground surface. Groundwater likely flows to the northwest in the northwestern portion of the site, and to the south and southeast in the remainder of the site.

A surficial aquifer (a relatively thin zone of seasonally saturated soil also known as a perched groundwater zone) is present on the site. Groundwater flow within these shallow perched zones mimics surface topography and extends in down slope directions toward wetland areas and drainage channels. Shallow groundwater in the northwestern portion of the site generally flows to the northwest. Shallow groundwater in the remainder of the site generally flows to the southwest.

Historic Uses

A historic records search indicates that the Bremerton Site has been undeveloped since at least 1951.

Environmental Health-Related Conditions

The *Phase I Environmental Site Assessment* (2011) prepared for the Bremerton Site identified no conditions indicative of the release or possible release of contaminants into site soils and/or groundwater, or the presence of other hazardous materials at the site or at offsite locations in the immediate site vicinity. (See **Appendix F** for further information.)

Mason County Site

Physical Setting and Existing Uses

The Mason County Site is located nearby the existing Washington Correctional Center near Shelton. The site is currently undeveloped and vegetated with brush and trees.

The site topography is generally level to gently rolling, except along the northwest margin and near the southeast corner of the site. Elevations across the site range from about Elevation 280 feet near the southwest corner of the site to about Elevation 335 feet near the southeast corner. A steep slope parallels West Dayton Airport Road and extends along the entire northwest side of the site.

Static ground water elevations on the site are typically 20 to 45 feet below the existing ground surface and likely flow to the southwest.

A shallow aquifer of unknown thickness is present within the site and the depth to groundwater is unknown. The thickness of the saturated zone of the aquifer, where present, fluctuates seasonally in response to variations in precipitation. Shallow groundwater within the recessional outwash likely flows to the southwest, following the general orientation of the ground surface.

Historic Uses

A historic records search indicates that the Mason County Site has been undeveloped since at least 1951.

Environmental Health-Related Conditions

The *Phase I Environmental Site Assessment (ESA)* (2011) prepared for the Mason County Site identified no conditions indicative of the release or possible release of contaminants into site soils and/or groundwater, or the presence of other hazardous materials at the site.

The *Phase I ESA* identified the following two offsite, nearby sites that either had documented releases of hazardous materials or were registered facilities that manage hazardous materials in significant quantities in the vicinity of the site. (See **Appendix F** for further information.)

- The Shelton Auto Wrecking business is located at 1501 West Dayton Airport Road adjacent and to the northeast and up gradient of the Mason County Site. This site is listed as a recycling business which handles hazardous materials in significant quantities. The *Phase I ESA* report indicates that the facility has had no violations or reported releases and is not, therefore, considered as a potential source of recognized environmental conditions on the Mason County Site.

- The Mason County Landfill is located at 501 West Eells Hill Road, across Highway 112 to the northwest and up-gradient of the Mason County Site. A review of the Environmental Data Resources list indicates the Mason County Landfill is identified on the landfill, underground storage tank and confirmed and suspected contaminated sites (CSCSL) lists. The *Phase I ESA* report indicates that the site has been determined to require No Further Action (NFA) after undergoing a Volunteer Cleanup Program (VCP) by the Washington State Department of Ecology and is not, therefore, considered as a potential source of recognized environmental conditions on the site.

Thurston County Site

Physical Setting and Existing Uses

The Thurston County Site is located on the site of the former Maple Lane Juvenile Facility near Ground Mound. The northern 55-acres of the site are developed with a complex of buildings that comprise the former juvenile detention facility. The southern 155-acres of the site are primarily undeveloped.

The developed portion of the site is located on a nearly level terrace above the Chehalis River floodplain. The southwestern side of the site slopes steeply down over a vertical height of about 20 feet to the level of the floodplain. Steep slopes less than 20 feet in vertical height are also present along the southeast side of the site, adjacent to Prairie Creek. Elevations across the developed portion of the site are at or close to Elevation 160 feet. The river floodplain south and west of the site is at about Elevation 140 feet.

Groundwater levels in the developed portion of the site are generally about 20 to 35 feet below the surface of the terrace and likely flows to the southwest, toward the Chehalis River floodplain.

Historic Uses

In 1914, the existing onsite administration building was developed on the site as a girl's reformatory. Additional structures were developed on the site through the 1960s, 1980s and 1990s. Currently, there are 32 buildings/structures located on the site including: a former high school, dormitories, a steam plant, a fueling station and other associated support buildings.

Environmental Health-Related Conditions

The *Phase I Environmental Site Assessment* (2011) that was prepared for the Thurston County Site identified several conditions indicative of the release or possible release of contaminants into site soils and/or groundwater, as well as the possible presence of other hazardous materials at the site and in the site vicinity, as described below:

- A review of the Environmental Data Resources list indicates the Thurston County Site is listed on the Confirmed and Suspected Contaminated Sites List (CSCSL). A central steam plant boiler on the southern portion of the Thurston County Site was historically supplied by a heating fuel underground storage tank (UST). The 6,000-gallon capacity diesel fuel UST was installed in 1980 and removed in 1997 along with 40 cubic yards of contaminated soil. Soil and groundwater amendment was done using hydrogen peroxide injection at the source area. Groundwater monitoring over the course of nine years demonstrated compliance with MTCA Method A Groundwater Cleanup Levels. MTCA Method A cleanup levels are the most stringent and are appropriate for unrestricted use of a site. Ecology granted the Thurston County Site a decision of No Further Action (NFA) on January 9, 2009. In light of the NFA decision by Ecology, the past release of heating oil near the central steam plant is not considered a potential source of recognized environmental conditions for the Thurston County Site.

- Previous hazardous materials reports and sampling indicate that asbestos containing materials and lead-based paint are present in onsite buildings.

- A motor vehicle fueling system is present on the southern portion of the Thurston County Site which was used to fuel the juvenile detention center's fleet vehicles. The system was reportedly served by USTs beneath a central dispenser island. The USTs and some contamination were reportedly removed in the late 1980s. However, no reports or other documentation of the UST removal or soil was available for use in this analysis. The *Phase I Assessment* recommended further investigation on these conditions.

  Consistent with the recommendations of the *Phase I Assessment*, a *Phase II Environmental Site Assessment* (2011) was prepared for the Thurston County Site to further investigate the motor vehicle fueling system area. Three soil borings were drilled in the vicinity of the onsite motor vehicle fueling system at a depth of 10 to 15 feet. Analysis of the soil borings found no gasoline range total petroleum hydrocarbons, benezene, toluene, ethylbenzene or xylene. One sample contained oil and diesel range total petroleum hydrocarbons but the concentrations were below the MTCA Method A soil cleanup levels. The analysis concluded that the motor vehicle fueling system was not anticipated to have associated adverse environmental impacts.

The *Phase I Environmental Site Assessment* identified no conditions indicative of the release or possible release of contaminants into site soils and/or groundwater, or the presence of other

hazardous materials at offsite locations in the vicinity of the site. (See **Appendix F** for further information on site contamination conditions.)

3.5.2 Impacts

This section summarizes the potential environmental health-related impacts associated with the proposed *Westside Prison Reception Center* at the three site alternatives. Environmental health-related impacts could occur during construction (i.e. during demolition, grading activities or construction of infrastructure and buildings) and/or operation of the facility (i.e. following site construction when the facility is fully functioning).

The discussion in this section is presented in two sections: potential environmental impacts which would be applicable at all of the three alternative sites and potential environmental impacts specific to a particular site.

All Sites

The potential for certain environmental health-related impacts to occur during construction and operation of the proposed *Westside Prison Reception Center* would be same at all of the three sites, as described below.

Construction

Construction of the proposed prison reception center would generate air pollutants as a result of dust from demolition activities (if any), earthwork and emissions from construction vehicles. However, such air pollutants would be temporary in nature and localized to the immediate vicinity of the construction activity. Construction activities would be conducted according to the applicable air quality regulations established by the Puget Sound Clean Air Agency (Bremerton Site) or Olympic Region Clean Air Agency (Mason and Thurston County Sites) (see Section 3.2, **Air Quality**, for details).

During construction, the potential for accidental spills of construction-related chemicals would exist. A Pollution Prevention Plan (PPP) containing procedures for preventing and responding to accidental spills would be prepared prior to construction at the selected site.

It is possible that undocumented contaminants could exist at any of the three site alternatives. Should such contamination be discovered, applicable investigation and cleanup provisions, including applicable MTCA regulations, would be followed.

No significant impacts from these construction-related activities would be anticipated.

Operation

The proposed *Westside Prison Reception Center* facility would include medical uses that would provide medical testing procedures and basic medical care for offenders. (Offenders requiring advanced medical care would be transported to a hospital or emergency room facility for treatment.) These medical uses could generate hazardous materials associated with medical treatment, including medical waste and sharps. The medical waste materials produced by the

medical uses within the facility would be stored and disposed of in accordance with all applicable local and state waste management regulations.

These medical uses could also require the use and storage of tanks with gases under pressure for medical procedures. These tanks would be operated and transported to/from the facility in accordance with all applicable regulations.

Emergency power for the proposed prison reception center would be provided via a diesel fueled generator and/or propane tanks. Diesel and gasoline would be stored in double wall above-ground storage tanks with leak detection. Propane, if required, would be stored in above ground tanks. All tanks would meet regulatory requirements.

No significant impacts associated with these operations associated would be anticipated.

Bremerton Site

The proposed *Westside Prison Reception Center* on the Bremerton Site would include construction of a bus barn facility. The bus barn would be a stand-alone building for maintaining buses, trucks, autos and maintenance equipment for prison reception center operations and offender transportation. Activities conducted at the bus barn facility would include an outside fueling station (served by an above-ground tank), an outside vehicle wash facility (including water recycling) and an indoor vehicle maintenance area. Functions accommodated within the building would include an engine repair/tune-up area, tools/parts storage area and tire storage area.

Hazardous waste generated from bus barn activities such as waste oil, lubricants, antifreeze and batteries would be disposed of in accordance with all applicable laws and regulations. The above-ground fuel tank, vehicle wash facility and vehicle maintenance area would be constructed and operated according to applicable requirements and significant impacts associated with bus barn activities would not be anticipated.

Mason County Site

No site-specific environmental health-related conditions (in addition to the impacts identified for *All Sites* above) that could impact development of the *Westside Prison Reception Center* are known to be present on the Mason County Site.

The bus barn operations under this alternative site would be centralized at the existing bus barn at the nearby Washington Correctional Center; therefore, no new impacts from this use would be anticipated.

Thurston County Site

In addition to the impacts identified for *All Sites* above, the following site-specific conditions that could impact development of the *Westside Prison Reception Center* are known to be present on the Thurston County Site.

Construction

Demolition of existing structures on the Thurston County Site to allow construction of the *Westside Prison Reception Center* could disturb asbestos-containing materials and/or lead-based paints. Exposure to these contaminants could pose safety concerns for construction/demolition workers and could affect air quality on a temporary basis in the immediate vicinity of demolition activities. However, all applicable work health and safety provisions would be followed to preclude significant impacts.

As stated under **Section 3.5.1**, an existing fueling facility is located on the site outside of the existing maintenance building. It is anticipated that the existing fueling facility and the associated fuel storage tank would be decommissioned and removed from the site. Decommissioning of the existing fuel system and tank would be completed in accordance with all applicable regulations. If any unanticipated contamination or hazardous materials are encountered onsite during demolition of the existing fuel system and tank, they would be removed, mitigated or decommissioned in accordance with applicable federal, state and local requirements.

Operations

The existing maintenance building on the Thurston County Site would be repurposed to serve as the bus barn facility. The bus barn would be a stand-alone building for maintaining buses, trucks, autos and maintenance equipment for prison reception center operations and offender transportation. Activities conducted at the bus barn facility would include an outside fueling station (served by an above-ground tank), an outside vehicle wash facility (including water recycling) and an indoor vehicle maintenance area. Functions accommodated within the building would include an engine repair/tune-up area, tools/parts storage area and tire storage area. All waste generated by the bus barn facility (i.e., waste oil, antifreeze, etc.) would be controlled and disposed of in accordance with applicable laws and regulations and no significant impacts would be anticipated.

Summary of Three Site Alternatives

Both the Bremerton Site and the Thurston County Site would include operations of a stand-alone bus barn facility; whereas, the Mason County Site would centralize bus barn operations at the existing, adjacent WCC facility. The potential for hazardous waste spills or contamination associated with bus barn operations would be present at the Bremerton and Thurston County Sites but would not be present at the Mason County Site.

The potential for the introduction of environmental health contaminants associated with the health-care activities at the *Westside Prison Reception Center* (i.e. medical waste) would be the same at any of the three site alternatives.

Comparatively, the Bremerton and Mason County Sites are currently undeveloped and do not contain any known contamination. Thurston County is the only site that currently contains areas of contaminated soils, primarily related to previous fuel storage; contaminant concentrations were found to be below MTCA Method A soil cleanup levels and are not anticipated to have associated environmental impacts.

No known sources of soil or groundwater contamination have been identified in the immediate vicinity of the Bremerton or Thurston County Sites. One off-site location with documented releases of hazardous materials has been identified in the vicinity of the Mason County Site (the Mason County Landfill to the northwest) but the site has completed a voluntary cleanup program and is not considered a potential source of environmental impact to the Mason County Site.

Certain existing buildings on the Thurston County Site associated with the former Maple Lane Juvenile Detention Facility are known to contain asbestos-containing materials and/or lead-based paint that would need to be abated in accordance with applicable regulations prior to building demolition or remodel activities. Because both the Bremerton and Mason County Sites would not require building demolition activities for development of the prison reception center on these sites; the potential for environmental-health related impacts associated with handling asbestos-containing materials and/or lead-based paint would not be present at the Bremerton or Mason County Sites.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives but the increased demand for additional long-term prison space would remain. Potential environmental health-related impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** – Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts to environmental health resulting from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in new environmental health-related impacts.

3. **Additional Long-Term Incarceration Capabilities** – Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for space as well as the long-term prison space displaced at the WCC by increased prison reception center uses. Depending on the location of the additional long-term incarceration facilities, construction and operations could result in environmental-health related impacts. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts to environmental health.

3.5.3 Mitigation Measures

Mitigation measures to address potential environmental health related impacts are listed below.

All Sites

- A Pollution Prevention Plan (PPP) containing procedures for preventing and responding to accidental spills would be prepared prior to construction.

- If any unanticipated underground storage tanks, groundwater wells, buried hazardous materials, visibly impacted soil areas and/or septic tanks or other hazardous materials are encountered onsite during construction, they would be removed, mitigated or decommissioned in accordance with applicable federal, state and local requirements.

- Site development and construction would adhere to applicable regulations regarding demolition activity and fugitive dust emissions, including: wetting of exposed soils, covering or wetting of transported earth materials, washing of truck tires and undercarriages prior to travel on public streets, and prompt clean up of any materials tracked or spilled onto public streets.

- Any medical waste material produced by the proposed *Westside Prison Reception Center* facility would be stored and disposed of in accordance with all applicable local and state waste management regulations.

- The proposed above-ground fuel tanks associated with the onsite generator or onsite fueling would include double wall construction and leak detection and spill prevention systems to reduce the potential for leaks or spills.

Bremerton Site

- All vehicle maintenance facilities would be constructed and operated in accordance with applicable regulations.

Thurston County Site

- Prior to development of the proposed prison reception center, pre-demolition surveys and applicable asbestos and/or lead abatement activities would be completed on certain existing onsite buildings and structures associated with the existing Maple Lane Juvenile Facility, as required Olympic Region Clean Air Agency and other local, state and federal air quality or worker safety regulations.

- Decommissioning of the existing fuel system and tank would be completed in accordance with all applicable regulations.

- All vehicle maintenance facilities would be constructed and operated in accordance with applicable regulations.

3.5.4 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts would be anticipated with implementation of the proposed mitigation measures.

3.6 NOISE

This section describes the existing noise conditions on and in the vicinity of the three site alternatives. Potential noise impacts from construction and operation of the proposed *Westside Prison Reception Center* are analyzed. This section is based on information provided by ENVIRON International Corporation (2011).

3.6.1 Affected Environment

Noise is sometimes defined as unwanted sound, and the terms noise and sound are used more or less synonymously in this section. In assessing the impact of noise upon the environment, the distance from the noise source, duration of the sound, absorbency and roughness of the intervening ground surface, the presence or absence of obstructions (and their absorbency or reflectivity), the sensitivity of the receiver, and any increases over the existing ambient noise levels are all considered.

The decibel (dB) scale used to describe and quantify sound is a logarithmic scale that provides a system for considering the large differences in audible sound intensities. On this scale, a 10-dB increase represents a perceived doubling of loudness to someone with normal hearing. Therefore, a 70-dB sound level will sound twice as loud as a 60-dB sound level.

For purposes of this review, environmental noise is described in terms of "A-weighted decibels," symbolized as dBA. A-weighting represents noise levels using a scale that closely corresponds to the way people hear. People generally cannot detect a change of 1 dBA. A 3-dBA change is usually a just-perceivable difference in a relatively simple noise environment. A change of 5 dBA in a given noise source or environment would be likely to be perceived by most people under normal listening conditions.

With 0 dBA as the threshold of human hearing, examples of noise levels range from a faint 20 dBA due to the slight rustling of leaves, to 70 dBA from a normal car at 50 mph, to a deafening 140 dBA from a carrier jet takeoff. On the logarithmic decibel scale used to quantify noise, a doubling of sound-generating activity causes a 3-dBA increase in average sound produced by that source, not a doubling of the loudness of the sound, which requires a 10-dBA increase. For relatively long, multi-source noise sources such as roads, noise levels decrease 3 dBA for every doubling of distance from the source. For “point” noise sources such as a backhoe operating in a stationary location, sound levels usually decrease about 6 dBA for every doubling of distance from the source.

Many federal regulatory agencies and some local agencies use the equivalent sound level (Leq), and/or the day-night sound level (Ldn), to characterize sound levels and to evaluate noise impacts. The Leq is the level that if held constant over the same period of time would have the same sound energy as the actual, fluctuating sound. As such, the Leq can be considered an energy-average sound level. The Ldn is a 24-hour sound metric completed from hourly Leqs, but with a 10-dBA penalty added to sound levels that occur between 10 PM and 7 AM to account for potential interference with sleep.

Regulatory Overview

Washington Administrative Code

The Washington Administrative Code (WAC) Chapter 173-60 establishes limits on the levels and durations of noise crossing property boundaries, with allowable sound levels based on the Environmental Designation for Noise Abatement (EDNA) of the source of the noise and the EDNA of the receiving property. Generally, lands used for residential uses are considered Class A EDNAs, lands used for commercial uses are considered Class B EDNAs, and industrial lands are Class C EDNAs. The limits are expressed in decibels at the property boundary (see **Table 3.6-1**).

Table 3.6-1
STATE OF WASHINGTON NOISE LIMITS (dBA)

EDNA of Noise Source	EDNA of Receiving Property		
	Class A	Class B	Class C
Class A	55	57	60
Class B	57	60	65
Class C	60	65	70

Source: WAC 173-60

The established "base" noise limits may be exceeded for certain periods of time: up to 5 dBA for no more than 15 minutes in any hour, up to 10 dBA for no more than 5 minutes of any hour, or up to15 dBA for no more than 1.5 minutes of any hour. The maximum permissible levels are not to be exceeded by more than 15 dBA at any time by noise from non-exempt sources. In addition, certain noise sources or activities are exempt from the maximum permissible sound levels, including sounds created by motor vehicles on public roads, and construction noise between 7 AM and 10 PM.

Each of the three alternative sites is subject to local rules pertaining to noise received on neighboring properties. The applicable regulations are described below.

City of Bremerton Noise Code

The Bremerton noise code (BMC Chapter 6.32) sets levels and durations of allowable daytime/nighttime operational noise. As shown in **Table 3.6-2**, Bremerton's noise limits are based on the zoning of the source and receiving properties, with District I zones generally corresponding to residential areas, District II zones generally corresponding to commercial areas and District III zones generally corresponding to industrial areas. The noise limits and exemptions under the Bremerton noise code are similar to the state noise limits and exemptions described above, except for lower nighttime noise limits for uses affecting residential areas.

Table 3.6-2
CITY OF BREMERTON NOISE LIMITS (dBA)

District of Sound Source	District of Receiving Property		
	I[1] Day/Night[4]	II[2]	III[3]
I	55/45	57	60
II	57/47	60	65
III	60/50	65	70

Source: BMC 6.32.040

[1] District I : Zones SF1, SF2, SF3, CBR, DR, MF, MR

[2] Nighttime limits are reduced by 10 dBA at District I receiving properties. Daytime hours are 7AM to 10 PM. Nighttime hours are 10 PM to 7 AM.

[3] District II: Zones PO, NB, GB, SC, BC, BP, MX, PS, LPO, DW, DC

[4] District III: Zones IP, IG, WS, FM

Mason County Noise Ordinance

Chapter 9.36 of the Mason County Code establishes limits on the levels and durations of noise crossing property boundaries based on the Environmental Designation for Noise Abatement (EDNA) of the source and receiving properties. Mason County defines EDNA classes based on the use of each property. Class A EDNAs generally correspond to residential properties, Class B EDNAs to commercial properties, and Class C EDNAs to industrial properties.

As shown on **Table 3.6-3**, The Mason County noise limits and exemptions are similar to the noise limits for the City of Bremerton and the state of Washington, with higher allowable noise levels for industrial uses (Class C) by approximately 5 dBA, as well as commercial uses affecting other commercial uses.

Table 3.6-3
MASON COUNTY NOISE LIMITS (dBA)

EDNA of Noise Source	EDNA of Receiving Property		
	Class A	Class B	Class C
Class A	55	57	60
Class B	57	65	65
Class C	65	70	75

Source: WAC 173-60

Thurston County Noise Ordinance

The Thurston County Site is regulated by noise limits included in the Thurston County Code (TCC, Chapter 10.36). However, because the Thurston County Code does not specifically identify sound level limits applicable to environmental noise, the noise limits included in the Washington Administrative Code (WAC) would apply. The state noise limits are described above.

Existing Zoning and Land Uses, and Associated Noise Limits

Bremerton Site

The Bremerton Site and adjacent properties to the east and south are located in the City of Bremerton, are zoned Industrial, and are currently undeveloped. The site would be considered a District III noise source based on its industrial zoning.

The nearest residences are located to the west of the site, across SW Lake Flora Road on property zoned for industrial uses; these would be considered District III receiving properties. District III noise sources affecting District III receiving properties are subject to a base noise limit of 70 dBA at all times of day (see **Table 3.6-2**).

Existing residences are located to the north of the Bremerton Site, across SR 3 on lands zoned Rural Protection, and are District I receiving properties. District III noise sources affecting District I receiving properties are subject to base noise limits of 60 dBA between 7 AM to 10 PM and 50 dBA between 10 PM and 7 AM. Note that the properties west and north of the site are in unincorporated Kitsap County, not the City of Bremerton. However, Kitsap County applies the same noise limits as the City of Bremerton, which are based on the zoning of the source and receiving properties.

Mason County Site

The Mason County Site and adjacent properties are zoned Rural Residential 20 (RR20). The site and properties to the west, north, and south are currently undeveloped. The adjacent property to the east includes residential use.

Noise limits in Mason County are based on the use of the property. The proposed prison reception center and the nearest residences are considered Class A EDNAs with base noise limits of 55 dBA between 7 AM and 10 PM and 45 dBA between 10 PM and 7 AM.

Thurston County Site

The Thurston County Site is zoned Planned Industrial Park and is the location of the former Maple Lane Juvenile Detention Facility. Because Thurston County has not established noise limits for specific land uses, the Washington State noise limits apply. The reception center would be considered a Class A EDNA noise source based on the residential uses it includes.

Land to the northeast across Old Highway 9 SW is zoned residential (R3-6/1) and is residential in use. Land adjacent to the southeast corner of the site is zoned rural residential/resource (RRR 1/5) and is rural residential in use. These residential receiving properties are considered Class A EDNA receiving properties. Class A noise sources affecting Class A receiving properties are subject to base noise limits of 55 dBA between 7 AM and 10 PM and 45 dBA between 10 PM and 7 AM.

Existing Acoustic Environment

Long-term (24-hour) sound level measurements (SLM) were taken in June 2011 at locations representing the residences closest to each of the sites (see **Figures 3.6-1** through **3.6-3** for the SLM locations).

The SLMs were taken using Type 1 sound level meters that had been factory certified within the past 12 months. The microphones were housed in acoustically neutral weather heads at a height of about 5 feet above the ground. The sound level meters were programmed to collect data in 1-hour intervals. Observers noted sound sources during deployment and retrieval of the measurement equipment. The observed sound sources and measured sound levels are described below for each site.

Bremerton Site

The Bremerton Site 24-hour SLM was located to the west of the site, 20 feet north of the mobile home at 11854 SW Lake Flora Road (see **Figure 3.6-1**). The sound level meter was not staffed during the entire measurement, but noise sources were observed during setup and retrieval of the equipment. Noted noise sources included aircraft, traffic along SR 3 and SW Lake Flora Road, and birds. During retrieval, noise from wind in the trees was audible. The measurement data are summarized below in **Table 3.6-4**.

Table 3.6-4
BREMERTON SITE - EXISTING SOUND LEVELS

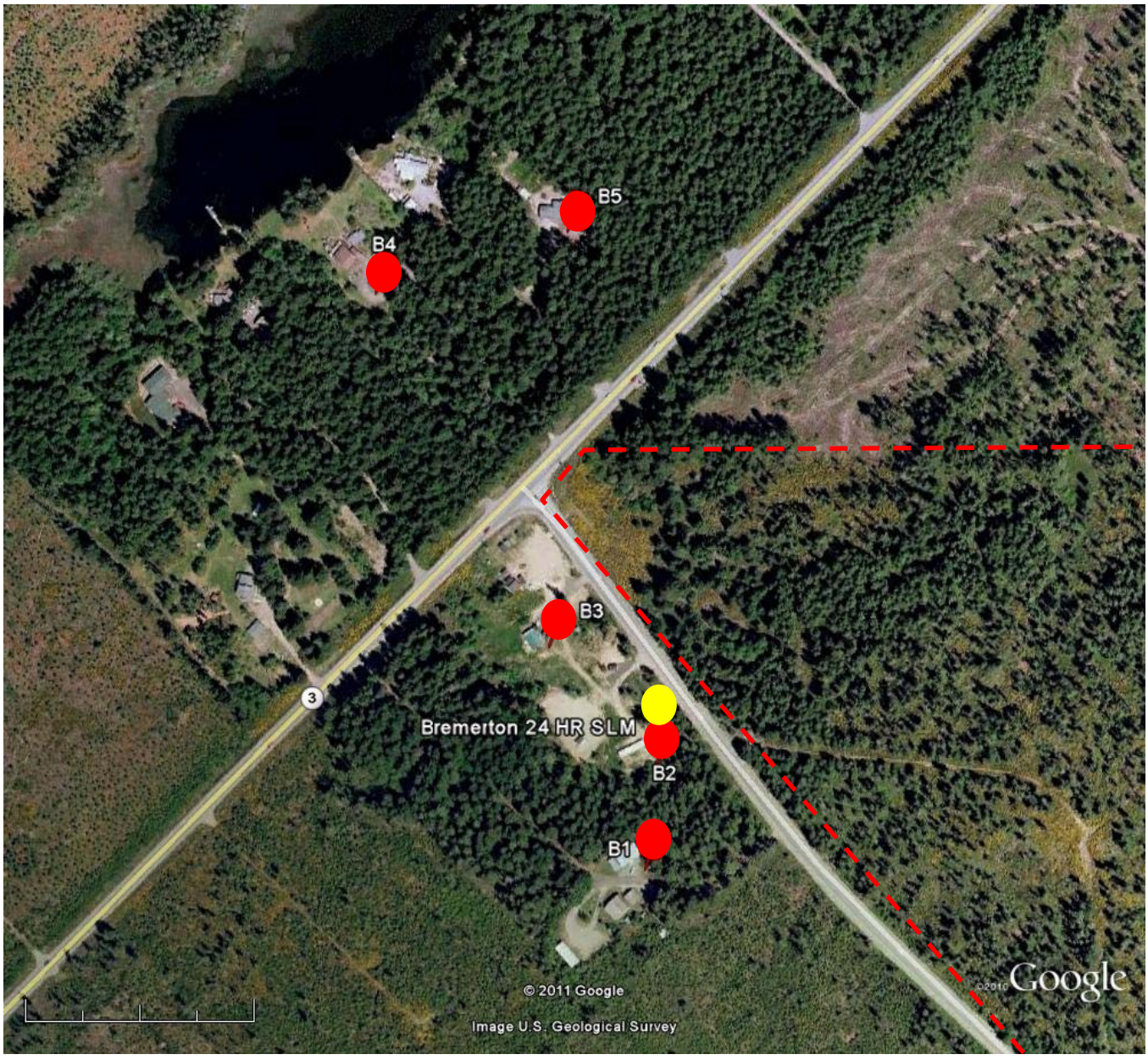
SLM Location	Time [1]	Leq	L25	L8	L2	Lmax	Ldn
Bremerton	Day	56-60	55-60	59-63	62-67	69-84	62
	Night	48-58	47-58	53-61	56-64	66-88	
	AM Peak 6 to 7 AM	58	57	61	64	81	
	PM Peak 5 to 6 PM	59	59	62	65	84	

Source: Sound Level Measurements by ENVIRON International Corp., 2011.

[1] The ranges are shown for daytime hours (7:00 AM to 10:00 PM) and nighttime hours (10:00 PM to 7:00 AM).

Mason County Site

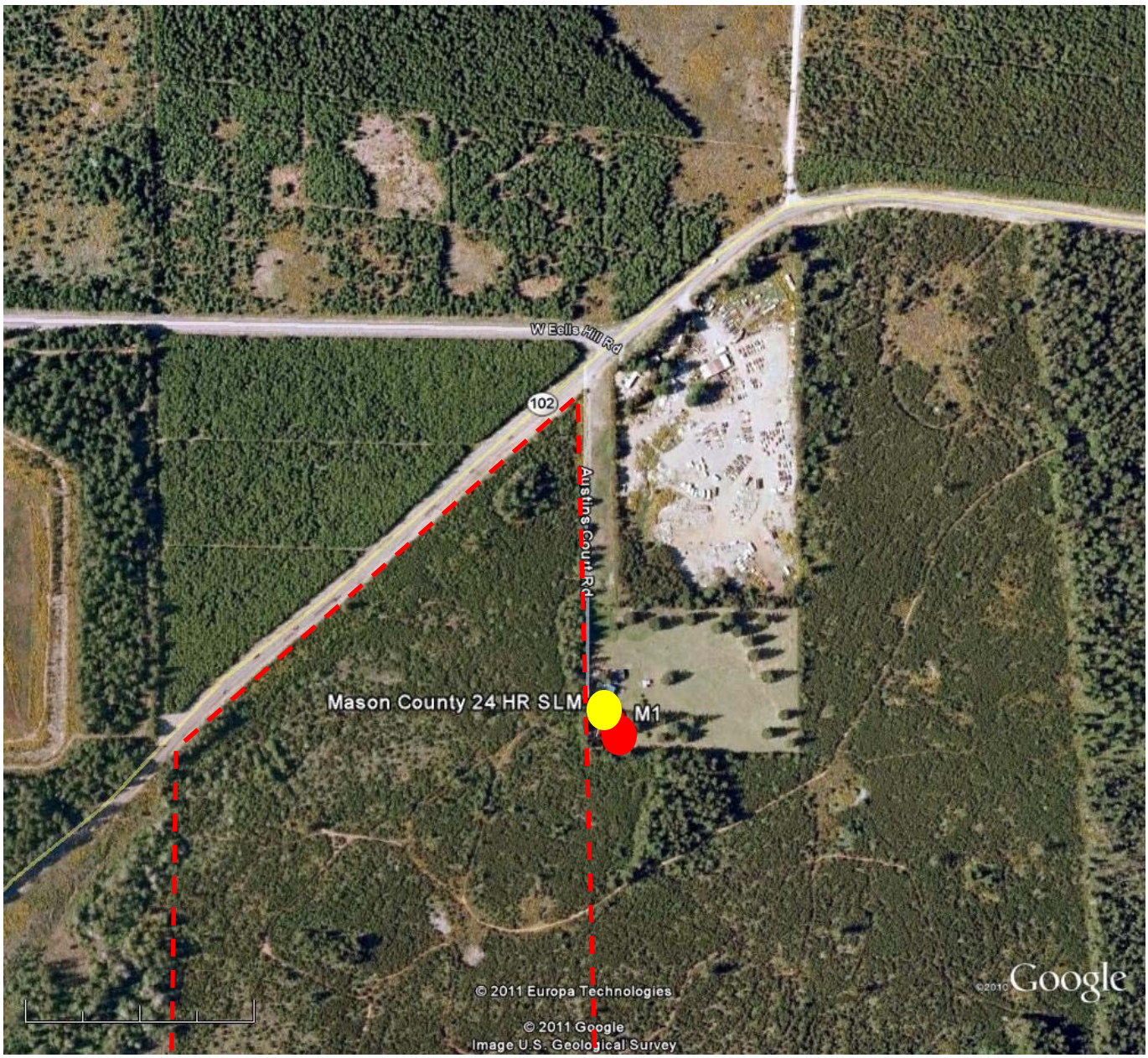
The Mason County Site 24-hour SLM was located to the east of the site, on the southwest corner of the Culver Property at 1583 SR-102 (see **Figure 3.6-2**). The sound level meter was not staffed during the entire measurement, but noise sources were observed during setup and retrieval of the equipment. Noted noise sources included aircraft, traffic along SR-102, birds, and faint backup alarms from the landfill. During retrieval, noise from wind in the trees was audible. The measurement data are summarized below in **Table 3.6-5**.



Source: ENVIRON, 2011

EA | BLUMEN

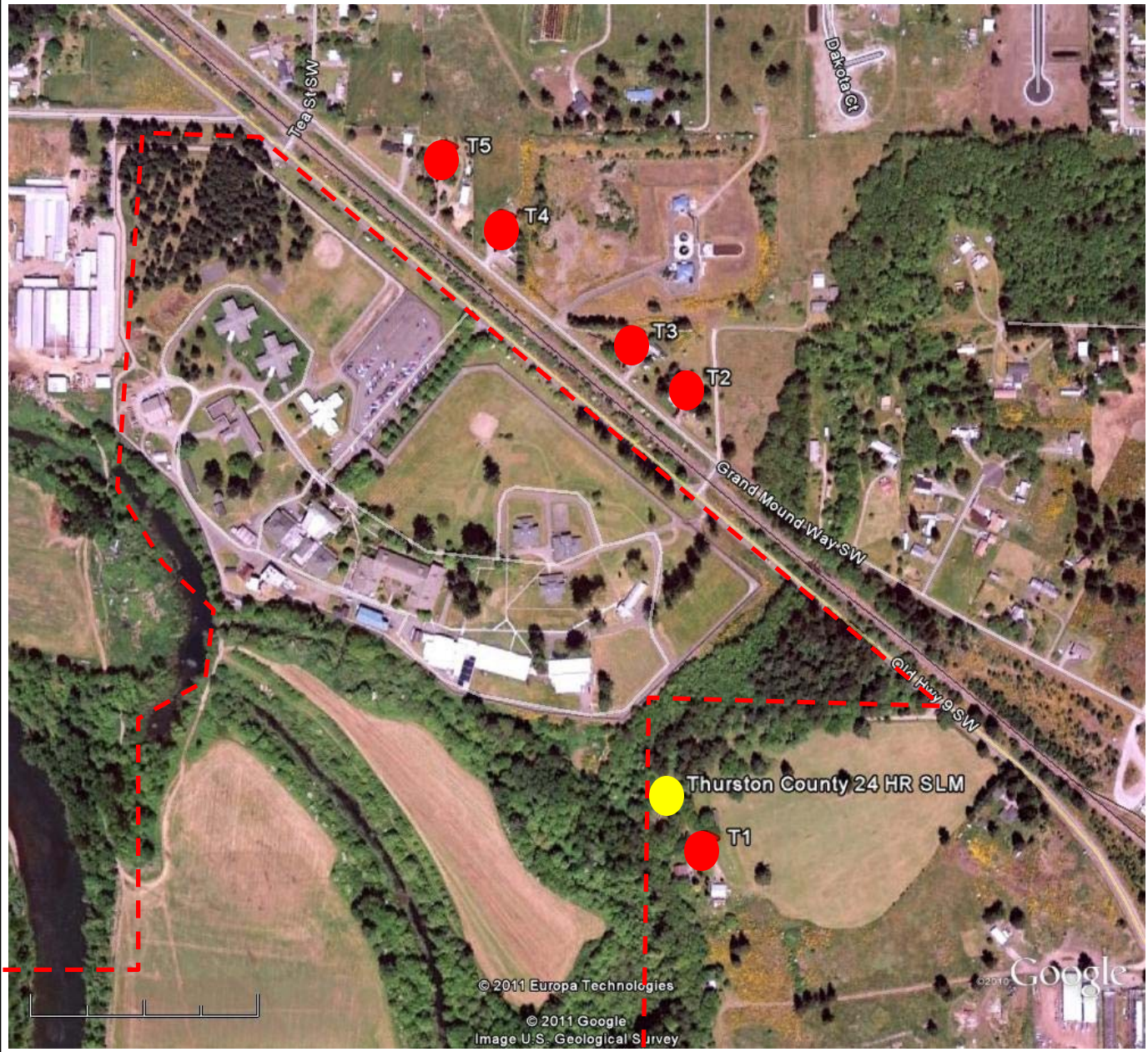
Figure 3.6-1
Bremerton Site - Sound Level Measurement Locations



Source: ENVIRON, 2011

EA | BLUMEN

Figure 3.6-2
Mason County Site - Sound Level Measurement Locations



Source: ENVIRON, 2011

EA | BLUMEN

Figure 3.6-3
Thurston County Site - Sound Level Measurement Locations

Table 3.6-5
MASON COUNTY SITE - EXISTING SOUND LEVELS

SLM Location	Time [1]	Leq	L25	L8	L2	Lmax	Ldn
Mason	Day	39-50	38-52	42-54	46-57	53-75	48
	Night	33-45	32-43	36-48	40-51	48-70	
	AM Peak 6 to 7 AM	42	42	45	48	59	
	PM Peak 5 to 6 PM	41	41	44	47	70	

Source: Sound Level Measurements by ENVIRON International Corp., 2011
[1] The ranges are shown for daytime hours (7:00 AM to 10:00 PM) and nighttime hours (10:00 PM to 7:00 AM).

Thurston County Site

The Thurston County Site 24-hour SLM was located to the southeast of the site, near the northwest corner of the Smith Property at 20525 Old Highway 9 SW (see **Figure 3.6-3**). The sound level meter was not staffed during the entire measurement, but noise sources were observed during setup and retrieval of the equipment. Noted noise sources included birds and occasional traffic along Old Highway 9. During retrieval, noise from wind in the trees was audible. The measurement data are summarized below in **Table 3.6-6**.

Table 3.6-6
THURSTON COUNTY SITE - EXISTING SOUND LEVELS

SLM Location	Time [1]	Leq	L25	L8	L2	Lmax	Ldn
Thurston	Day	41-49	40-49	44-53	48-57	60-77	52
	Night	36-52	36-47	39-51	41-55	46-77	
	AM Peak 6 to 7 AM	42	42	45	49	59	
	PM Peak 5 to 6 PM	45	43	50	55	65	

Source: Sound Level Measurements by ENVIRON International Corp., 2011
[1] The ranges are shown for daytime hours (7:00 AM to 10:00 PM) and nighttime hours (10:00 PM to 7:00 AM).

3.6.2 Impacts

Development of the *Westside Prison Reception Center* would result in the generation of noise during both construction and operation of the facility. Construction could result in temporary increases in sound levels near construction activity areas on the three sites and near roadways used for construction vehicles.

Noise sources and levels associated with construction and operation of the *Westside Prison Reception Center* would be similar for all site alternatives, as described below. Noise conditions specific to the individual sites are provided later in this section.

Construction

During construction of the prison reception center, the use of equipment during clearing, grading and building erection would cause short-term noise levels to increase. The proposed

construction schedule would last approximately two years, with construction activity generally occurring between the hours of 7 AM and 6 PM on weekdays. Specific noise levels vary with the type of activity and equipment used. For construction of the prison reception center, equipment utilized during grading and paving activities would be the noisiest task and could produce noise levels of up to 74 dBA at 250 feet and 62 dBA at a distance of 1,000 feet. **Table 3.6-7** summarizes noise levels from various construction activities.

Table 3.6-7
TYPICAL CONSTRUCTION SOUND LEVELS

Activity	Range of Hourly Leqs (dBA)		
	At 250 feet	At 300 feet	At 1,000 feet
Clearing	69	67	57
Grading	61-74	59-72	49-62
Paving	57-74	56-72	45-62
Building Erection	58-70	56-68	46-58

Source: EPA, 1971 with modifications by ENVIRON International Corporation, 2011.

Operation

Operation of the proposed facility at any of the alternative sites could result in noise from traffic accessing the site, mechanical (e.g., HVAC) equipment, and loading dock activities. Several elements of the proposed *Westside Prison Reception Center* project have the potential to result in noise being received at nearby sensitive receivers. These facility-related elements include mechanical (HVAC) equipment, truck loading docks, and increased traffic on local roadways.[1] Combinations of these sorts of equipment were examined using noise modeling to estimate potential off-site sound levels from this equipment. A summary of the sound levels used to represent the various potential sources is provided in **Table 3.6-8**.

Table 3.6-8
EQUIPMENT/ACTIVITY SOUND LEVELS AT 50 FEET (dBA)

Source	Event Hourly Leq
Kitchen Mechanical Units	64
Large HVAC Unit	64
Exhaust Fans (4)	51
Trash Compactor (6 minutes/hour)	51
Truck Idling at Dock (15 minutes/hour)	67
Truck Arrival and Backup (2 minute event)	59
Traffic	Varies

Source: ENVIRON International Corporation, 2011.

[1] Note that noise from outdoor recreation areas can be a concern with some correctional facilities, but the proposed facility would not include outdoor recreational use areas.

HVAC Systems/Mechanical Equipment

Heating, ventilation, and air conditioning (HVAC) units, exhaust fans, and air handling units would be installed to service the proposed prison reception center facilities. Specific noise levels generated by such equipment would depend on the location, height, and design of individual equipment and building systems. Preliminary site plans do not include details regarding the specific locations of HVAC or other units, and the design process is not yet advanced enough to have allowed for identification of specific pieces of equipment. There are, therefore, no details regarding equipment sound levels. The sound levels displayed in **Table 3.6-8** were obtained from ENVIRON archives of previous projects and reflect levels in the higher range of equipment assessed.

The noise modeling for each site assumed the following parameters regarding equipment locations and usage:

- The kitchen would be served by a constant volume air-handling unit, a make-up air unit, a large exhaust fan, and two smaller exhaust fans.

- The laundry would be served by roof mounted exhaust fans and relief vents. For the purpose of this evaluation, it was assumed that this would be equivalent to four large exhaust fans.

- The four medium security housing units would be supported by dedicated HVAC units installed at ground elevation.

- The remaining housing units and administration and support buildings would each be supported by dedicated HVAC units installed on the roofs of each building.

Loading Docks

Other potential noise sources associated with the proposed project include activities and trucks at the facility loading dock. A trash compactor at the loading dock was assumed to run intermittently throughout the day or night. Truck arrivals/departures and unloading activities were also assumed to occur during both daytime and nighttime hours.

Facility Traffic

Noise from traffic traveling on and to and from the sites could affect residences near the facility. During a peak hour of activity (between 6:30 and 7:30 AM or between 5 and 6 PM), up to 149 vehicles (including 3 buses and 2 delivery trucks) are assumed to access or leave the facility. On average over a day, 41 vehicles (including 1 bus and 1 delivery truck) would access or leave the facility during any one-hour period.

The specific noise implications of construction and operation of the facility at each alternative site are discussed below.

Bremerton Site

Construction

Noise from construction activities related to development of the facility would likely be audible during much of the construction period at the nearest residences located approximately 500 feet to the east of the site and over 1,000 feet to the north of the site. Construction-related sounds are exempt from the Bremerton noise limits between the hours of 7 AM and 10 PM.

Although construction activity would be expected to produce audible noise at nearby residences, most construction activity would occur approximately 150 feet from the site boundary, resulting in lower construction noise levels. These factors, in combination with the temporary nature of construction activity, the restriction of construction to daytime hours and the implementation of measures to minimize noise associated with construction activities, would minimize the potential for significant noise impacts from construction activities and equipment.

Operation

Noise Modeling Tool

Noise anticipated to be generated by the sources described previously was evaluated at nearby off-site receivers using the CadnaA noise model. CadnaA is a software program that enables complete noise modeling of complex facilities using sound propagation factors as adopted by ISO 9613. The modeling included the following steps: (1) characterizing the noise sources, (2) creating 3-dimensional maps of the site and vicinity to enable the model to evaluate effects of distance and topography on noise attenuation, and (3) assigning the equipment sound levels to appropriate locations on the site. CadnaA then constructed topographic cross sections to calculate sound levels in the vicinity of the prison reception center.

Noise Compliance Assessment Results

Noise modeling of the Bremerton Site indicates that the operational noise levels from on-site noise sources would range from 37 dBA to 43 dBA at the residences nearest to the site (to the west and north). Noise modeling did not include off-site traffic, because this source is exempt from the limits. The 37 to 43 dBA noise levels would easily comply with both the applicable daytime and nighttime noise limits of 55 dBA to 70 dBA (see **Table 3.6-9**).

Table 3.6-9
BREMERTON SITE - NOISE MODEL RESULTS (dBA)

Receptor [1]	On-Site Peak Hour2	Noise Limit	Existing Ldn	Project Ldn3	Cumulative Ldn 4	Projected Increase
B1	42	70	62	49	62	0
B2	43	70	62	52	62	0
B3	40	70	62	51	62	0
B4	37	55/45[5]	62	47	62	0
B5	38	55/45[5]	62	49	62	0

Source: Noise Modeling by ENVIRON International Corp., 2011
[1] See **Figure 3.6-1** for receptor locations
[2] The modeled-calculated level is an hourly Leq, which for these types of sources would be similar to the L25 upon which the noise limit is based.
[3] The Project Ldn assumes the facility traffic volumes occur evenly during all hours of the day and night, and that all on-site sources operate continuously 24-hours a day. The Project Ldn includes both on and off-site traffic related to the project.
[4] Cumulative levels include both existing and project-related levels.
[5] Daytime / Nighttime

Noise Increase Assessment

In addition to compliance with the noise limits, substantial increases in noise levels or substantial changes in the character of a noise environment can also result in noise impacts. To evaluate the potential for prison reception center operational related noise to result in such changes, noise from off-site traffic (which is exempt from noise limits) was included in the noise modeling along with all of the on-site sources reviewed for the noise compliance assessment described above. The results of the modeling effort are displayed in **Table 3.6-9** under the 'Projected Increase' column. As shown, the model-calculated project-related noise increases in daily sound levels (Ldn) at off-site receptor locations are essentially zero. Therefore, no noise impacts would be expected due to the proposed project at this site.

Mason County Site

Construction

Noise from construction activities related to the facility would likely be audible at the adjacent residence located to the west of the site during much of the construction period. Construction-related sounds are exempt from the Mason County noise limits between the hours of 7 AM and 10 PM.

Most of the construction activities related to development of the facility at the Mason County Site would occur at a distance of 250 to 1,000 feet from the closest residences. As demonstrated in **Table 3.6-7**, presented earlier in this section, construction activities at a distance of 250 feet result in calculated hourly sound levels much higher than the operational noise limits applicable at the nearest residence (i.e., 55 dBA during daytime hours). Sound levels at 1,000 feet are more likely to be at or below the daytime noise limit. The estimated sound levels at both 250 and 1,000 feet are also higher than the existing daytime sound levels in the site vicinity, which are generally in the 40s dBA. Therefore, some of the construction activity would be expected to be audible and potentially intrusive. Overall, however, because construction activities would be

limited to daytime hours, would be temporary and measures would be implemented to minimize construction noise on the site, no significant noise impacts would be expected due to construction.

Operation

Elements of the proposed *Westside Prison Reception Center* facility operations have the potential to result in noise being received at the residence located to the east of the Mason County Site. These facility-related elements include mechanical (HVAC) equipment, truck loading docks, and increased traffic on local roadways. A summary of the sound levels used to represent the sources is provided in **Table 3.6-8** (above).

Noise anticipated to be generated by operation of the prison reception center was evaluated at nearby receivers using the CadnaA noise model, as described previously.

Noise Compliance Assessment Results

Noise modeling of the Mason County Site indicated that the operational noise levels would be 37 dBA at the residence nearest to the facility (**Table 3.6-10**). This noise modeling did not include off-site traffic, which is exempt from the noise limits. The 37 dBA noise level easily complies with both the applicable daytime and nighttime noise limits (**Table 3.6-3**).

Noise Increase Assessment

In addition to compliance with the noise limits, substantial increases in noise levels or drastic changes in the character of a noise environment can also result in noise impacts. To evaluate the potential for facility-related noise to result in such changes, noise from off-site traffic (which is exempt from noise limits) was included in the evaluation along with all of the other sources reviewed for the noise compliance assessment described above. The results of the modeling effort are displayed below in **Table 3.6-10** under the 'Projected Increase' column. As shown, the projected increases in daily sound levels (Ldn) as a result of the proposed facility at the Mason County Site are essentially zero. Therefore, no noise impacts would be expected anticipated from operation of the Westside Prison Reception Center at the Mason County Site.

Table 3.6-10
MASON COUNTY SITE - NOISE MODEL RESULTS (dBA)

Receptor [1]	On-Site Peak Hour [2]	Noise Limit	Existing Ldn	Project Ldn [3]	Cumulative Ldn [4]	Projected Increase
M1	31	55/45[5]	48	37	48	0

Source: Noise Modeling by ENVIRON International Corp., 2011.
[1] See **Figure 3.6-2** for receptor locations
[2] The modeled-calculated level is an hourly Leq, which for these types of sources would be similar to the L25 upon which the noise limit is based.
[3] The Project Ldn assumes the facility traffic volumes occur evenly during all hours of the day and night, and that all on-site sources operate continuously 24-hours a day. The Project Ldn includes both on and off-site traffic related to the project.
[4] Cumulative levels include both existing and project-related levels.
[5] Daytime / Nighttime

Thurston County Site

Construction

Noise from construction activities related to development of the facility at the Thurston County Site would likely be audible at the nearby residences to the north and east of the site during much of the construction period. Construction-related sounds are exempt from the WAC noise limits applicable in Thurston County between the hours of 7 AM and 10 PM.

Most of the construction activities related to development of the facility at the Thurston County Site would occur at a distance of 300 to 1,000 feet from the nearest residences. As demonstrated by **Table 3.6-7**, construction activities at a distance of 300 feet would result in calculated hourly sound levels higher than the operational noise limits applicable at the nearest residence (i.e., 55 dBA during daytime hours). The sound levels at 1,000 feet are more likely to be near the daytime noise limit. The estimated sound levels at both 300 and 1,000 feet are also higher than the existing daytime sound levels in the site vicinity, which are in the 40s dBA. Therefore, some of the construction activity would be expected to be audible and potentially intrusive. Overall, however, because construction activities would be limited to daytime hours, would be temporary and measures would be implemented to minimize noise during construction, no significant noise impacts would be expected.

Operation

Elements of the proposed *Westside Prison Reception Center* facility operations have the potential to result in noise being received at the residences nearest the Thurston County Site (to the north and east). These facility-related elements include mechanical (HVAC) equipment, truck loading docks, and increased traffic on local roadways. A summary of the sound levels used to represent the sources is provided in **Table 3.6-8** (presented earlier in this section).

Noise anticipated to be generated by operation of the prison reception center was evaluated at nearby receivers using the CadnaA noise model, as described previously (see **Figure 3.6-3**).

Noise Compliance Assessment Results

Noise modeling of the Thurston County Site indicated that noise levels due to operational on-site noise sources would range from 41 to 49 dBA at the residences nearest to the site. Noise modeling did not include off-site traffic because it is exempt from the limits. The worst-case projected operational noise level of 49 dBA at receptor locations T2 and T3 would exceed the nighttime base noise limit of 45 dBA (**Table 3.6-11**), due to the operation of rooftop mechanical equipment. This finding is based on conservative assumptions regarding noise levels from on-site activities and numbers of active pieces of mechanical equipment. These issues would be more definitively addressed during actual facility design. Regardless, noise could be reduced to acceptable levels by building noise barriers around rooftop HVAC units. If the Thurston County Site was selected as the site for the *Westside Prison Reception Center*, the design of the noise barriers would be assessed more completely during actual design of the facility to ensure noise from the facility would comply with applicable noise limits.

Estimated sound levels at the other receptor locations (T1, T4 and T5) would comply with both the daytime and nighttime noise limits.

Table 3.6-11
THURSTON COUNTY SITE - NOISE MODEL RESULTS (dBA)

Receptor [1]	On-Site Peak Hour [2]	Noise Limit	Existing Ldn3	Project Ldn4	Cumulative Ldn5	Projected Increase
T1/SLM	41	55/45[6]	52	48	53	1
T2	49	55/45[6]	59	56	60	2
T3	49	55/45[6]	59	56	61	2
T4	45	55/45[6]	58	53	59	1
T5	42	55/45[6]	57	50	58	1

Source: Noise Modeling by ENVIRON International Corp., 2011.
[1] See **Figure 3.6-3** for receptor locations
[2] The modeled-calculated level is an hourly Leq, which for these types of sources would be similar to the L25 upon which the noise limit is based.
[3] The Existing Ldns were estimated at receptor locations T2 through T5 based on traffic noise modeling of the existing traffic volumes (provided by Heffron Transportation, Inc.) and comparison of the measured AM Peak hour sound level and the Ldn at T1.
[4] The Project Ldn assumes the facility traffic volumes occur evenly during all hours of the day and night, and that all on-site sources operate continuously 24-hours a day. The Project Ldn includes both on and off-site traffic related to the project.
[5] Cumulative levels include both existing and project-related levels.
[6] Daytime / Nighttime

Noise Increase Assessment

In addition to compliance with the noise limits, substantial increases in noise levels or substantial changes in the character of a noise environment can also result in noise impacts. To evaluate the potential for facility-related noise to result in such changes, noise from off-site traffic (which is exempt from noise limits) was included in a noise increase assessment evaluation along with all of the other sources reviewed for the noise compliance assessment, as described above. To facilitate the comparison of community noise levels with and without the proposed facility, existing noise levels at receptor locations T2 through T5 were first estimated using modeling to calculate noise from nearby existing traffic sources. (The traffic volumes for this modeling effort were provided by Heffron Transportation and are summarized in Section 3.13, **Transportation**). All project-related noises were then modeled, including additional off-site traffic related to the *Westside Prison Reception Center* operations.

The results of the modeling are displayed in **Table 3.6-11** under the 'Projected Increase' column. As demonstrated, the projected increases in daily sound levels (Ldn) as a result of the proposed facility at the Thurston County Site range from 1 to 2 dBA. Such increases would typically be considered a slight noise impact, and no significant noise impacts would be expected due to sound level increases associated with operation of the facility at this site.

Summary of the Three Site Alternatives

Noise from construction activities related to development of the facility at all three sites would likely be audible at the residences closest to the sites during much of the construction period. The closest residences are 500 feet east and 1,000 feet north at the Bremerton Site; adjacent to the Mason County Site; and approximately 100 feet to the north (north of Old Hwy 9 SW) and 600 feet to the south at the Thurston County Site. Because construction activities would be

limited to daytime hours, would be temporary and would include the implementation of measures to minimize noise associated with construction activities, no significant noise impacts would be expected at any of the site alternatives.

At the Bremerton and Mason County Sites, the projected operational noise levels from the facility would comply with the applicable daytime and nighttime noise limits, and the estimated increases in community noise due to the facility are negligible and no noise mitigation is proposed for operation of these sites. At the Thurston County Site, noise from rooftop mechanical equipment would have the potential to exceed the nighttime noise limits at nearby residential receiving properties. To reduce noise to acceptable levels, noise barriers could be built around the rooftop HVAC units, which were identified to be the primary noise sources which could exceed noise level limits.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives, but the increased demand for additional long-term prison space would remain. Potential noise impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** – Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential noise impacts from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in new noise-related impacts.

3. **Additional Long-Term Incarceration Capabilities** – Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for space as well as the displaced long-term prison space at the WCC due to increased prison reception center uses. Depending on the location and type of development, the additional long-term incarceration facilities could result in additional noise-related impacts. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address noise impacts.

3.6.3 Mitigation Measures

All Sites

- Construction at any of the sites would be subject to timing restrictions to between 7 AM and 10 PM.

- In order to reduce the generation of on-site construction noise and the transmission of such noise to off-site locations, some or all of the following construction noise mitigation measures could be implemented:

  - Require contractors to maintain all equipment (especially mufflers) in good working order.

  - Use engine enclosures on non-portable equipment when the engine is the dominant source of noise.

  - Locate stationary equipment as far from receiving properties as possible. Where this is not feasible, place portable noise barriers around equipment, with the opening directed away from sensitive receiving locations.

  - To the extent feasible, substitute hydraulic or electric models for impact tools such as jack hammers, rock drills and pavement breakers.

  - Where feasible, lift rather than drag materials to minimize material handling noise.

  - Explore the feasibility of using broad-band and ambient-sensing vehicle back up alarms, which are typically less noticeable than traditional pure-tone alarms.

Thurston County Site

- Noise barriers could be built around the rooftop HVAC units to reduce the level of rooftop mechanical noise to acceptable levels (i.e., levels that would comply with the nighttime noise limits).

3.6.4 Significant Unavoidable Adverse Impacts

With implementation of identified mitigation measures, no significant unavoidable adverse impacts would be anticipated.

3.7 LAND USE

This section of the Draft EIS describes the existing land uses on and in the vicinity of each of the three site alternatives and evaluates how the potential location of the *Westside Prison Reception Center* at the sites could affect these land uses, either directly or indirectly. Section 3.8, **Relationship to Plans, Policies and Regulations**, of this Draft EIS compares the consistency of development of the *Westside Prison Reception Center* at each site with relevant federal, state, regional and municipal land use plans, policies and regulations.

Analysis Methodology

Land use impacts are typically defined in terms of direct and indirect impacts. Direct impacts generally relate to construction impacts, displacement of existing uses, conversion of on-site land uses, changes in site density and changes in activity levels (i.e. increases in noise, traffic and pedestrian activity). Indirect land use impacts generally relate to the potential to create pressure for a transition in land uses in the site vicinity and the potential for changes in the overall land use character of an area. Impacts are often determined based on compatibility of proposed and existing uses. Therefore, direct and indirect land use impacts are evaluated in this Draft EIS to determine whether the proposed *Westside Prison Reception Center* use would be compatible with the existing land uses in the areas surrounding each of the sites.

It should be noted that during the site selection process for the proposed *Westside Prison Reception Center*, several general criteria related to land use were utilized to assist in the identification of the three sites to be analyzed in this EIS including: compatibility with surrounding land uses, separation from sensitive land uses (such as schools and parks) and general consistency with zoning and comprehensive plan designations. See **Chapter 2** for additional details regarding the site selection process.

As indicated above, a more detailed analysis of the relationship of the proposed *Westside Prison Reception Center* to surrounding land uses is presented in this EIS.

3.7.1 Affected Environment

This section describes the existing land use conditions on and in the vicinity of the three *Westside Prison Reception Center* site alternatives.

Bremerton Site

Existing Land Uses

The land use pattern in the vicinity of the Bremerton Site is varied and is generally characterized as rural with dispersed areas of residential, retail, industrial and municipal development (Bremerton National Airport). The primary concentrations of development in the area are located along SR 3 (the primary roadway in the area) with residential and commercial uses associated with the unincorporated community of Belfair to the south and the City of Bremerton to the north.

Site

The approximately 60-acre Bremerton Site is held in private ownership (Overton & Associates). The site is located in the City of Bremerton within the South Kitsap Industrial Area (SKIA) and is southeast of SR 3 and northeast of SW Lake Flora Road.

The site is currently undeveloped and vegetated with mature trees but has previously been logged for timber within the last 20 years. The topography in the site is generally rolling with several ridges, swales and localized depressions. The only existing vehicular access to the site is via unpaved logging roads off of SW Lake Flora Road; there are currently no access drives to the site off of SR 3, which is a state highway.

Immediately Adjacent Area

As shown on **Figure 3.7-1**, land uses immediately surrounding the Bremerton Site include:

- **North** – The area to the immediate north of the Bremerton Site is in undeveloped area. Further to the north and northeast is developed with the Bremerton National Airport with the runway located approximately 0.6 miles to the north of the site.

- **East** – The area immediately adjacent to the east of the Bremerton Site is undeveloped and vegetated. The majority of the area to the immediate east has been recently logged and is currently in Christmas tree farm use.

- **South** – The site is bounded to the south and southwest by SW Lake Flora Road. The area immediately south and southwest of SW Lake Flora Road is primarily undeveloped and vegetated with mature trees.

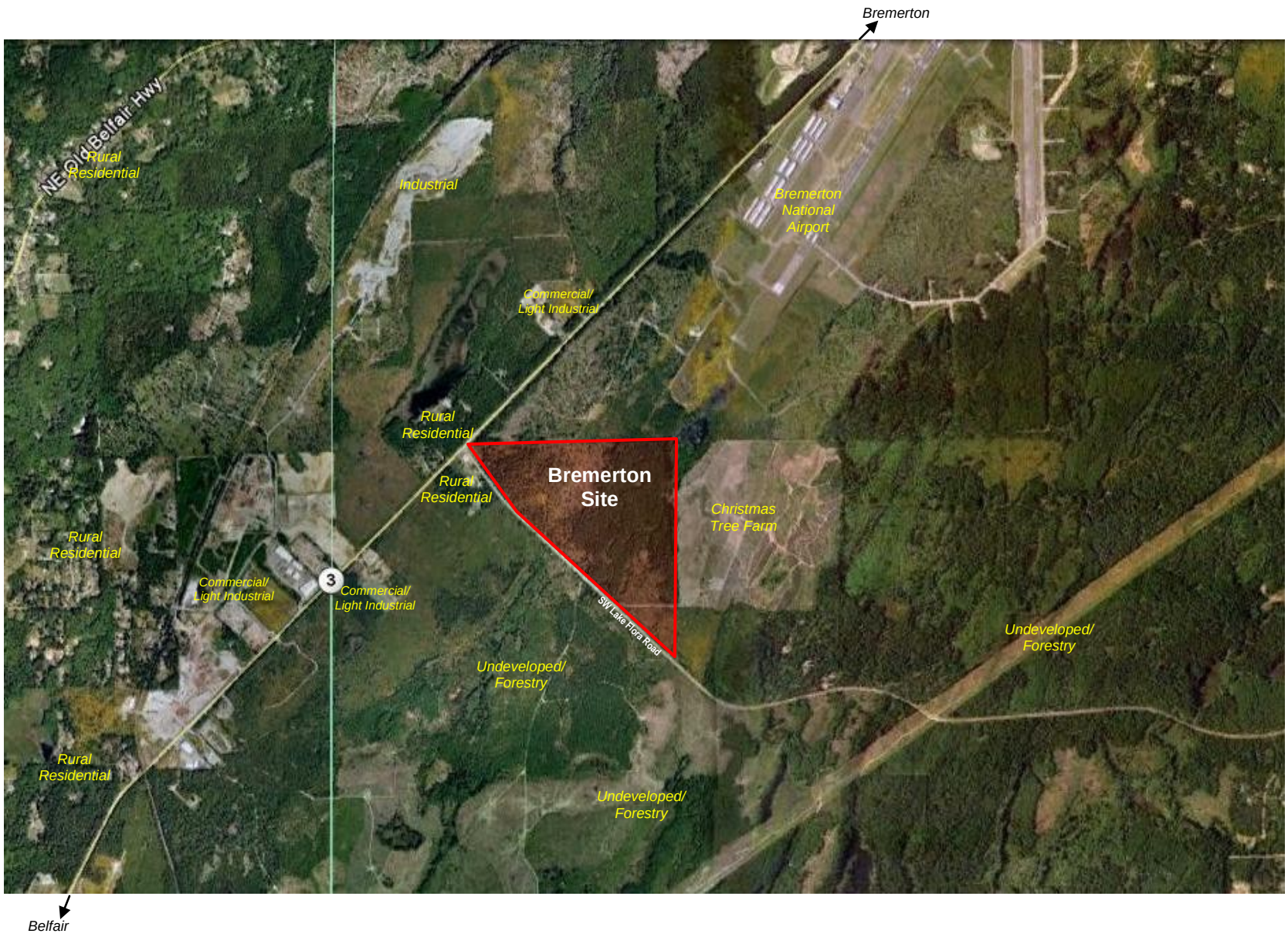
- **West** – The site is bounded to the west by the intersection of SW Lake Flora Road and SR 3. Two single-family homes and associated sheds are located at the southwestern corner of the intersection (across SW Lake Flora Road to the southwest); six single family residences are located at the northwestern corner of the intersection (across SR 3 to the northwest).

Site Vicinity

Beyond the specific immediate land uses described above, the following is a description of the general character of land uses in the site vicinity:

- **North** – The area to the north and northeast of the site is developed with the Bremerton National Airport. Further to the north is primarily undeveloped. The urban portion of the City of Bremerton is located approximately 9 miles to the northeast.

Washington State Department of Corrections
Westside Prison Reception Center Draft EIS



Source: EA|Blumen, Google, 2011

EA | BLUMEN

Figure 3.7-1

Bremerton Site - Existing Land Uses

- **East** – The area to the east and southeast of the site is primarily undeveloped and vegetated with mature trees. Some vegetated areas have been recently logged for timber.

- **South** – The area to the south and southwest of the site is primarily undeveloped with mature vegetation with a scattered residential uses. A mini-storage business and auto auction facility is located approximately 0.5 miles to the southwest of the site (across SW Lake Flora Road to the southwest). Approximately 2.5 miles to the southwest is the unincorporated community of Belfair.

- **West** – Across SR 3 to the west of the site, the area is predominantly undeveloped with scattered single-family residences and commercial/industrial uses such an auto wrecking yard.

Existing land uses in the area surrounding the site that could be potentially sensitive to a prison reception center use include single-family residential uses at the southern and western corners of the intersection of SR 3 and SW Lake Flora Road. No schools, parks, hospitals or other uses considered potentially sensitive to a reception center use are located within 0.5 miles of the site.

Buildings in the vicinity of the Bremerton Site are primarily low-rise, one to three-story structures. Larger-scale buildings in the area include the industrial/warehouse buildings associated with the auto wrecking yard southwest of the site and the structures associated with Bremerton National Airport.

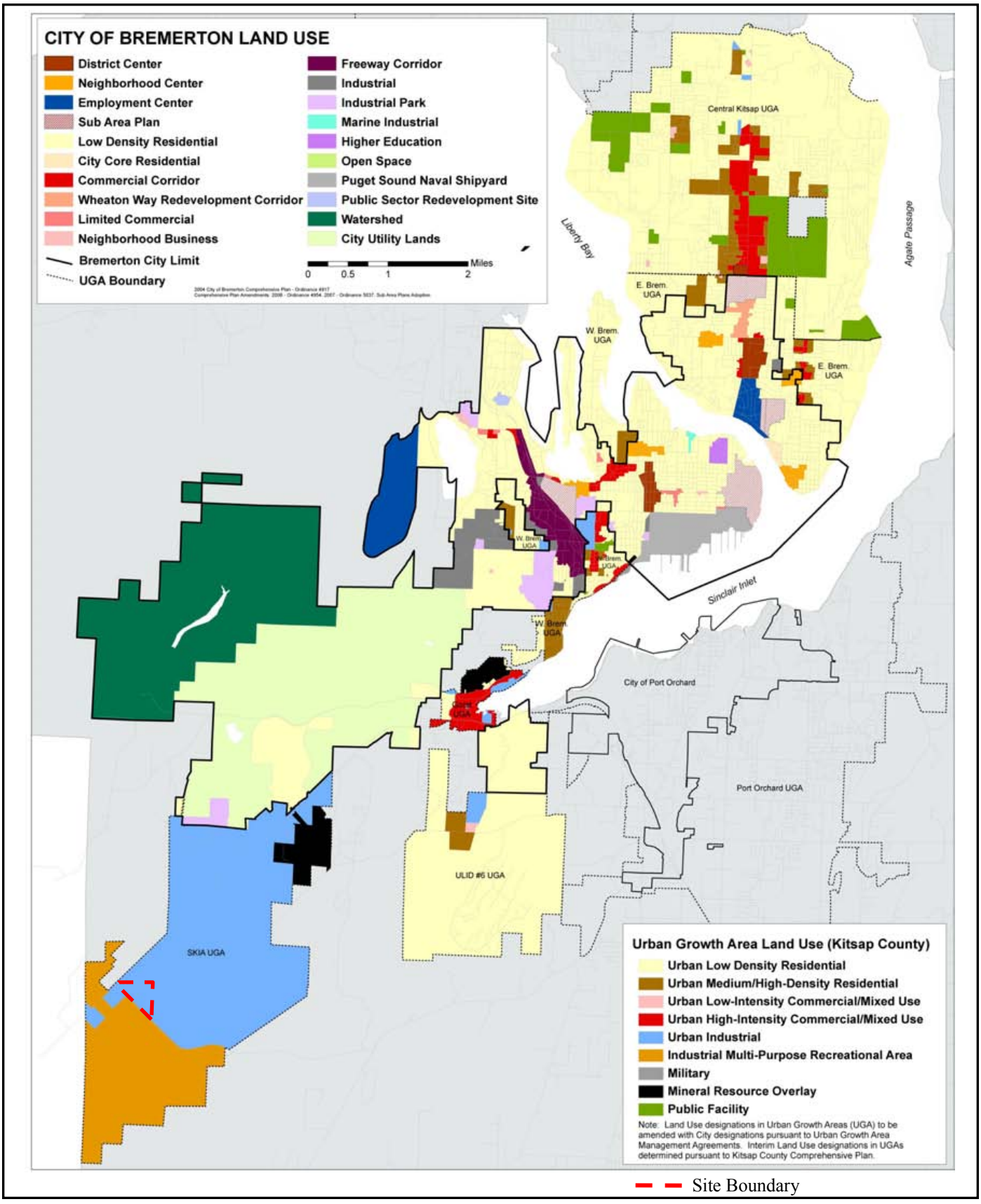
Existing Zoning and Comprehensive Plan Designation

The Bremerton Site is located in the City of Bremerton's Urban Growth Area within the South Kitsap Industrial Area (SKIA) planning subarea. The SKIA is comprised of approximately 3,590 acres and is primarily in the City of Bremerton with only 265 acres located in Unincorporated Kitsap County. The Port of Bremerton's main offices, airport, and industrial land is located in this area along with large portions of heavily forested land. Bremerton anticipates that SKIA would be developed with industrial and commercial uses over the next 20 year time frame and would be an economic driver for the region at large, providing more than 9,000 jobs.

Comprehensive Plan Designation

The *City of Bremerton Comprehensive Plan* was updated in 2008 to create the Manufacturing/Industrial Center (MIC) designation and add MIC as a new center type. The 2008 amendments also designated SKIA as a Manufacturing/Industrial Center. The MIC designation is applied to areas intended to accommodate large amounts of regional employment and manufacturing and industrial land uses that cannot be easily co-located with other uses and activities. MICs are expected to have a different urban form and purpose than the rest of the City's centers. MICs are characterized by large contiguous parcels with good access to regional transportation infrastructure.

The Bremerton Official Land Use Map applies the MIC designation to the Bremerton Site, as shown in **Figure 3.7-2**.



Source: EA|Blumen, Google, 2011

EA | BLUMEN

Figure 3.7-2
Bremerton Site - Comprehensive Plan Designation

Zoning

Currently, the City of Bremerton's Land Use Code (Title 20 of the Bremerton Municipal Code), designates the Bremerton Site as an "Industrial" zone, as shown on **Figure 3.7-3**. The intent of the Industrial zone is to accommodate large-scale and/or heavy industries in a manner that reduces impact to the community while meeting industry's need for easy access, large sites and locations that do not cause conflicts with residential and other less intense use areas. Areas to the north, east and south of the Bremerton Site are primarily zoned as "Industrial".

It should be noted that the single-family residential uses located to the southwest of the site at the southern corner of the intersection of SR 3 and SW Lake Flora Road are located in unincorporated Kitsap County and are a non-conforming use in an "Industrial" zone. Areas to the northwest (across SR 3 to the northwest) are zoned as Rural Residential (1 dwelling unit per 5 acres).

Planning Efforts

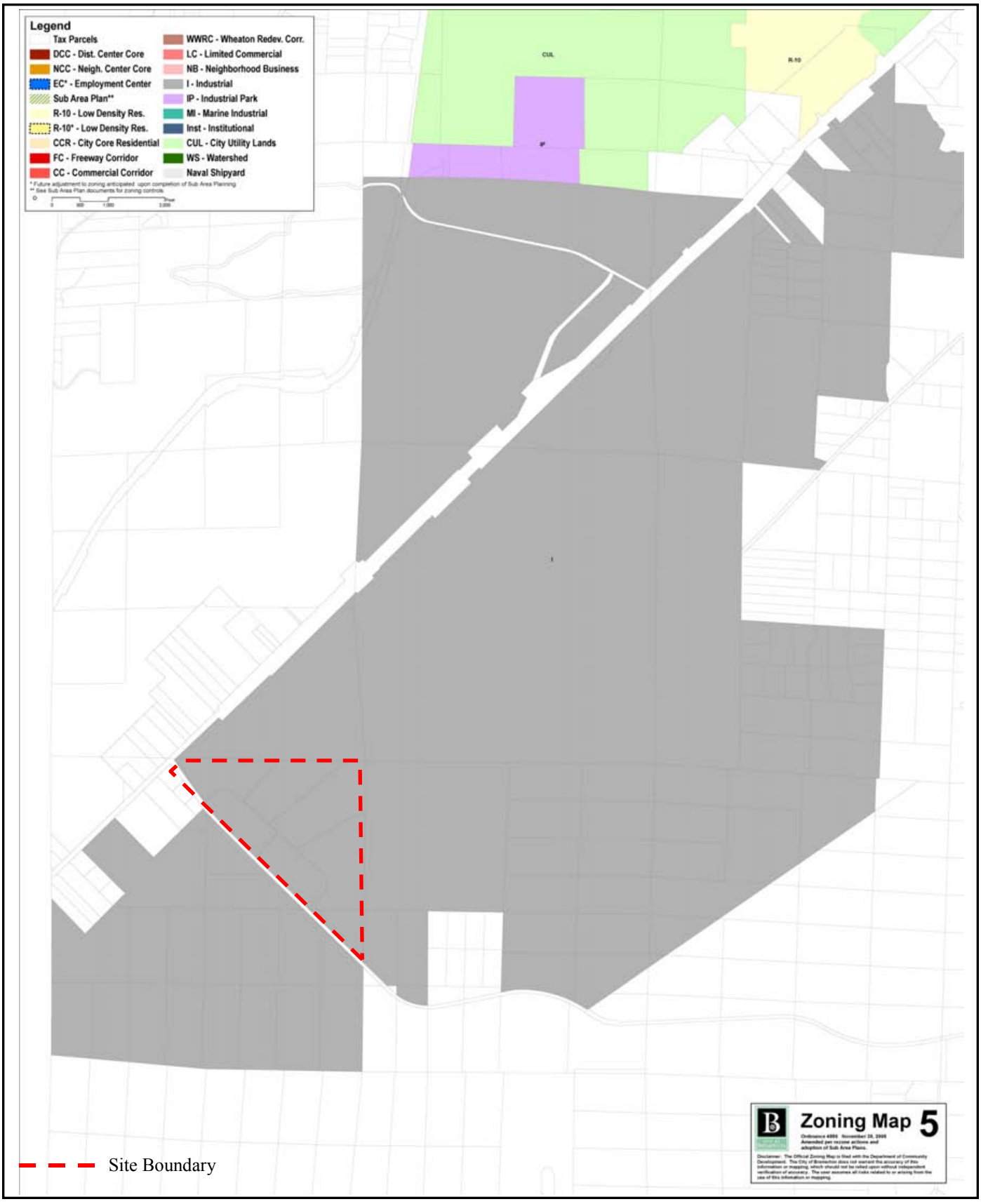
The City of Bremerton is currently in the process of developing a subarea plan for the SKIA area, which would apply to the Bremerton Site. Further, the City intends to adopt a Planned Action Ordinance that would apply to development within SKIA area (including the site). Also, the City is in the process of updating development standards that would implement the Subarea Plan, including new or revised zoning designations, low impact development standards and other measures that support sustainable economic development and greenhouse gas reduction. The SEPA DEIS[1] for the Draft SKIA Subarea Plan contains specific discussions related to the site and the potential for prison reception center use, including the following:

> *A portion of the SKIA study area, located along South Lake Flora Road, has been identified as a possible site for a future Washington Department of Corrections Reception Center. This site, together with other sites identified by the Department of Corrections, is scheduled to be studied this year in a separate SEPA process lead by the Department of Corrections. Should property within SKIA be selected for the future Department of Corrections facility, subarea plan goals and land use designations will be modified as needed to recognize this use.*
>
> *While recognizing this ongoing process, until a decision is made, the site is assumed to be incorporated in the SKIA subarea plan alternatives as described later in this Chapter and analyzed in this EIS.*

The draft regulatory framework within the Draft SKIA Subarea Plan proposes preliminary zoning with SKIA-specific zones tailored to specific areas. The Bremerton site would be within the light industrial flex zone, which would promote flex-tech and allow a wide range of light industrial uses.

See Section 3.8, **Relationship to Plans, Policies and Regulations**, for additional information about zoning and comprehensive plan land use designations.

[1] City of Bremerton, *Bremerton SKIA DEIS*, June 2011 (FEIS anticipated to be issued in October 2011).



Source: EA|Blumen, Google, 2011

Figure 3.7-3
Bremerton Site - Existing Zoning

Airport Safety Zone

The Bremerton Site is located adjacent to the Bremerton National Airport, which is owned and operated by the Port of Bremerton. Overall, the airport comprises an estimated 1,200 acres, of which approximately 800 acres are in aeronautical use.[2] Development associated with the airport as well as property in the vicinity of the airport is guided by a combination of federal, state and local entities -- including the Federal Aviation Administration (FAA), the Washington Department of Transportation (WSDOT) Aviation Division, and the City of Bremerton. Neither the FAA nor WSDOT Aviation has direct authority over local land-use decisions. FAA regulations are directed specifically at airport and aircraft operations. In order to maintain the airport's certification, Bremerton National Airport must comply with FAA regulations as they pertain to the airport's property. WSDOT Aviation provides guidance to communities relative to land use compatibility. Indirectly, direction provided by FAA and WSDOT Aviation, can influence development regulations that are established by local jurisdictions. A provision of the State's Growth Management Act directs "[e]very county, city, and town in which there is located a general aviation airport that is operated for the benefit of the general public … shall, through its comprehensive plan and development regulation, discourage the siting of incompatible uses adjacent to such general aviation airport" (RCW 36.70.547). The Port of Bremerton indicates that neither they nor the City have adopted WSDOT's land use compatibility zones; however, such could be the outcome of the current SKIA planning process.

WSDOT updated its *Airports and Compatible Land Use Guidebook* in January 2011. The Aviation Division emphasizes airspace protection and discourages local jurisdictions from permitting certain uses adjacent to airports, including residences, schools, and hospitals. Most industrial and commercial uses are considered to be compatible with airports.

WSDOT's *Airports and Compatible Land Use Guidebook* identifies considerations for land use compatibility with airport operations: land use patterns, building/structural obstructions, radio frequency interference, and ancillary facilities/actions associated with a proposed land use (see Section 3.8, **Relationship to Plans, Policies and Regulations,** for a complete description of these considerations). When considering land use patterns, one consideration concerns the specific location of the land use relative to one of the airport's six conceptual safety zones and the other addresses the nature of the land use within that zone. The zones are recommended guidelines (non-regulatory) and are based on accident location distribution data. Each zone corresponds to a phase of an aircraft's take-off or landing operation and the associated accident risk relative to proximity to the centerline of the runway. The proposed *Westside Prison Reception Center* building complex at the Bremerton Site would be located in Zone 6, roughly 100-200 ft. west of conceptual Zone 2. Zone 6 is the area with the lowest aircraft safety risk (i.e., proximate to the runway but not area normally associated with take-off or final landing approach). The Zone 6 guidelines indicate that "correctional facilities" are uses that may be compatible with airport operations depending on their location, size, bulk, height, density and intensity of use.

The Guidebook also lists a series of land uses that pose special concern with regard to airport safety compatibility. Among these are "Uses Having Vulnerable Occupants," which are defined as uses in which the majority of occupants have reduced mobility and would be unable to quickly get out of harm's way in an emergency situation. Specifically listed uses include

[2] Washington State Department of Transportation. 2011. *Airport Facilities and Services Report*.

schools, day care centers, hospitals, nursing homes, and other medical facilities where patients may be anesthetized or otherwise restricted from moving. The Guidebook specifically lists correctional facilities as having "Limited" compatibility in Zone 6. Limited uses may be compatible depending on their location, size, bulk, height, density and intensity of use. The Guidebook does not limit the intensity of use when uses in Zone 6 are within the urban growth boundary (see Section 3.8, **Relationship to Plans, Policies and Regulations** for more detail).

Mason County Site

Existing Land Uses

The land use pattern in the vicinity of the site is varied and is generally characterized as rural with industrial and municipal development (Washington Correctional Center, Sanderson Airport, Washington State Patrol Academy and the Mason County Landfill), scattered areas of residential uses and undeveloped areas dedicated to forestry or agricultural areas. The primary concentrations of development in the area are located along SR 102 (the primary roadway in the area) with residential, commercial and office use associated with the City of Shelton to the east.

Site

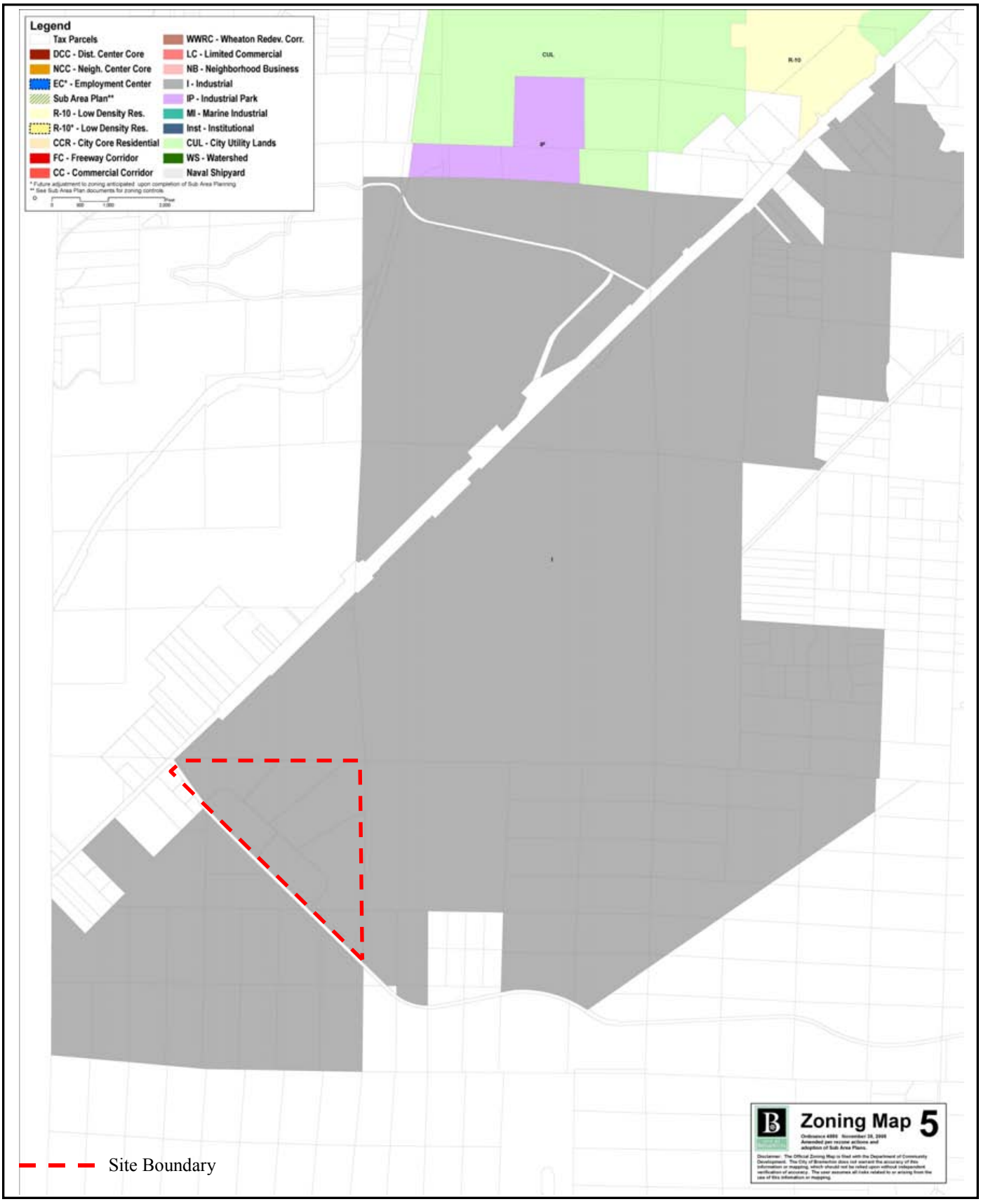
The approximately 50-acre Mason County Site consists of a single parcel that is held in private ownership (Hunter Family Farms, LLC). The site is located in Mason County near the City of Shelton, south of SR 102 and northeast of the existing Washington State Correctional Center. The site is currently undeveloped, vegetated and has been previously logged for timber. The topography of the site is generally level with the highest elevation at 335 ft. near the southeast corner and the lowest point is at 280 ft. along the southern and eastern boundaries. An approximately 25-foot grade separation is located onsite near and parallel to the SR 102 right-of-way. The only vehicular access to the site is via an unpaved logging road off of SR 102.

Immediately Adjacent Area

As shown on **Figure 3.7-4**, land uses immediately surrounding the Mason County Site include:

- **North** – The SR 102 right-of-way runs along the northern boundary of the site. The area adjacent to the north of SR 102 is undeveloped land with trees. Further to the north is Eells Hill Road.

- **East** – An auto repair shop with a single-family residence is located to the immediate east of the Mason County Site. The majority of the vegetation has been removed from this property; a large gravel parking area with a significant number of parked vehicles covers the northern portion of the property and the single-family residence is located in the southern portion of the property. Austin's Court Road, which runs along the eastern boundary of the Mason County Site provides access to the single-family home.



Source: EA|Blumen, Google, 2011

Figure 3.7-3
Bremerton Site - Existing Zoning

- **South** – The area adjacent to the south of the Mason County Site is undeveloped land with trees. Portions of the area have been recently logged for timber.

- **West** – In the area to the west of the site is undeveloped with trees. A PUD Peaking Station is located west of the site but east of the SR 102 right of way.

Site Vicinity

Beyond the specific immediate land uses described above, the following is a description of the general character of land uses in the site vicinity:

- **North** – The general area to the north of the site is undeveloped land with trees, some of which has been recently logged for timber.

- **East** – Within 1 mile to the east of the site, the area is undeveloped with trees. Approximately 1 mile to the east is located the Washington State Patrol Academy and approximately 1.5 miles to the east is Sanderson Airport. Further east/southeast are the retail and residential uses associated with the City of Shelton.

- **South** – The general area to the south of the site is undeveloped land with trees, some of which has been recently logged for timber. Approximately 0.3 miles southwest of the site is the Department of Correction's Washington Correctional Center, which houses the existing prison reception center use as well as some long-term incarceration uses. Scattered residential uses are located further to the south and southwest.

- **West** – The area to the west of the site is undeveloped land with trees, some of which has been recently logged for timber. Approximately 0.1 miles to the northwest of the site is the Mason County Landfill. Further to the west are scattered residential uses. Approximately 0.5 miles to the northwest of the site (north of the landfill) is a private race track which is currently under construction.

Existing land uses in the area surrounding the site that could be potentially sensitive to a prison reception center use include the single-family residential use to the immediate east of the site. No schools, parks, hospitals or other uses considered potentially sensitive to reception center use are located within 0.5 miles of the site.

Buildings in the vicinity of the Mason County Site are primarily low-rise, one to three-story structures. Larger-scale buildings in the area include the existing Washington Correctional Center located southwest of the site and structures associated with Sanderson Airport located southeast of the site.

Existing Zoning and Comprehensive Plan Designation

Comprehensive Plan Designation

As shown in **Figure 3.7-5**, the Mason County Site is located outside of an Urban Growth Area boundary within unincorporated Mason County. The western boundary of the Shelton Urban Growth Area parallels the eastern boundary of the site. According to Mason County's *Comprehensive Plan*, the land use designation for the site is "Rural Area", which is the land use designation applied to all areas of the county not designated as Urban Areas, Resource Lands, Rural Activity Centers, or Hamlets. Rural areas allow for rural residential, farming, forestry, and recreation, as well as small-scale commercial, retail, and industrial uses, though the rural landscape is intended to remain dominant, supporting protection of natural areas and features.

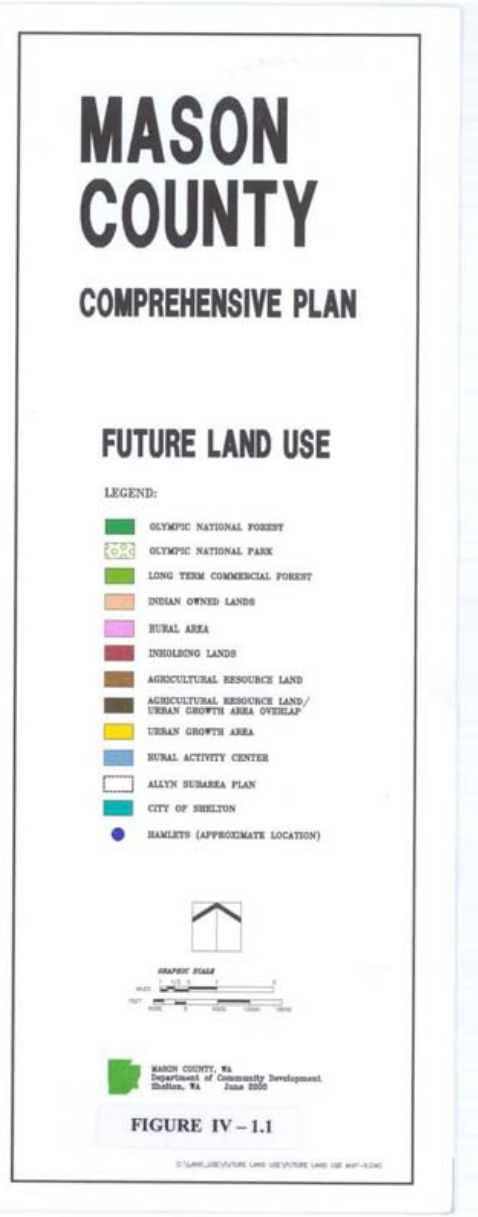
Urban levels of development are not allowed in Rural Areas, and resource uses, such as farming, forestry, aquaculture, and mining, are protected.

Zoning

Currently, the Mason County Zoning Code (Title 17 of the Mason County Code), designates the Mason County Site as a "Rural Residential 20 Acres" zone, as shown on **Figure 3.7-6**. The intent of the Rural-Residential 20 Acres zone is to provide for low density residential use on parcels of 20 acres or more. Areas to the northeast and east are within the City of Shelton and are zoned as Mixed Use. Areas to the south, west and north are within unincorporated Mason County and are zoned as follows: "Long Term Commercial Forest" to the south, "Rural Residential 5 Acres" to the southwest, and "Rural Residential 20 Acres" to the southwest, west, and northwest.

Although the Mason County Site is located in the general vicinity of Sanderson Airport, the site is not within a designated airport safety zone.

See Section 3.8, **Relationship to Plans, Policies and Regulations**, for additional information about zoning and comprehensive plan land use designations.



Site Boundary

Source: EA|Blumen, Google, 2011

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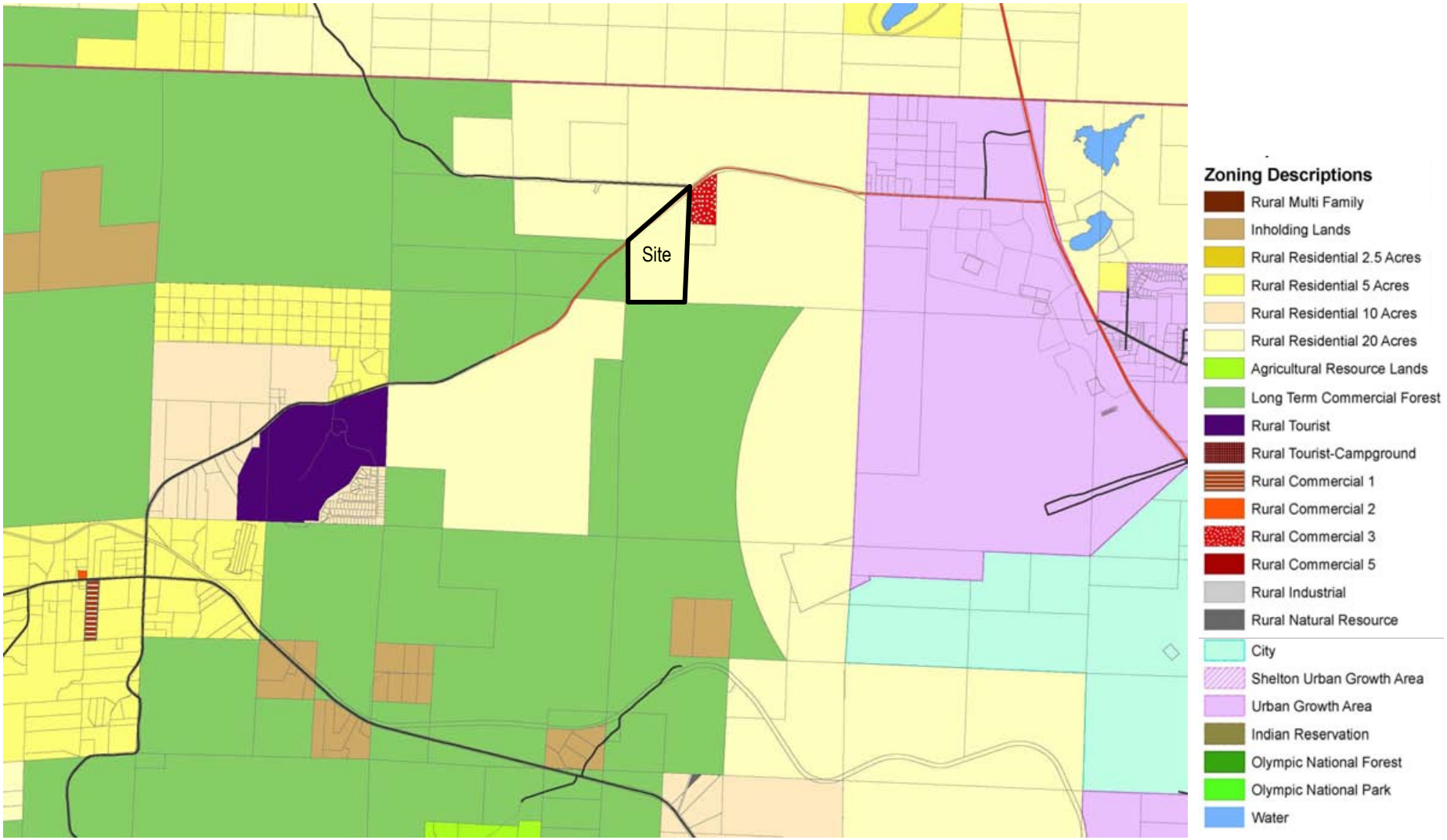
Figure 3.7-5

Mason County Site - Comprehensive Plan Designation



Source: EA|Blumen, Google, 2011

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Figure 3.7-6
Mason County Site - Existing Zoning

Thurston County Site

Existing Land Uses

The land use pattern in the vicinity of the Thurston County Site is varied and is generally characterized as rural residential to the north and south with some scattered industrial, commercial, institutional and retail. The areas to the east and west of the site are more rural with more undeveloped land and agricultural uses. The primary concentrations of development in the area are located north of the site along I-5 and SR 12 including the unincorporated areas of Rochester to the northwest and Grand Mound to the northeast and the City of Centralia to the south.

Site

The approximately 210-acre Thurston County Site is comprised of an approximately 55-acre northern portion (developed area) and an approximately 155-acre southern portion (undeveloped area). The topography in the northern 55-acre portion of the site is generally level with the highest elevation at 162 ft. near the northern corner and the lowest point at 160 ft. near the southern boundary. The northern portion of the site is developed with approximately 32 one to two story buildings totaling 240,000 sq. ft. that were associated with the Maple Lane Juvenile Detention Facility that formerly occupied the site. Uses for these buildings included: administrative offices, dormitories, utilities/boilers, recreational activities, classrooms, and medical facilities. A 12-foot tall fence is located around the perimeter of the onsite buildings. A staff parking lot accommodating approximately 200 parking spaces is located in the central portion of the site, outside the perimeter fencing. Mature trees are located around the perimeter of the site, along the main entrance driveway, and around some interior buildings. A large grove of trees is also located in the northwestern portion of the site. Primary vehicular access to the site is from Old Highway 9 SW.

The 155-acre southern portion of the site is undeveloped and contains wetlands and floodplain associated with the Chehalis River. There is an approximate 25-foot elevation change between the northern and southern portions of the site.

Immediately Adjacent Area

As shown in **Figure 3.7-7**, land uses immediately surrounding the Thurston County include:

- **North** – The northern boundary of the site is defined by the Old Highway 9 SW right-of-way. A railroad corridor runs north of and parallel to Old Highway 9 SW. The area north of the highway and railroad is primarily rural residential uses. A water/sewer treatment plant is located 0.1 miles to the north.

- **East** – Rural residential uses, agricultural uses and a portion of Prairie Creek (and the associated buffers) are located to the east.

- **South** – The Grand Mound driving range is located in the area adjacent to the southeast of the Thurston County Site. The southern boundary of the 210-acre site is defined by

the Chehalis River and Prairie Creek; a portion of Prairie Creek is located within the southern 155 acres of the site. South of the Chehalis River is undeveloped land.

- **West** – The area to the west and northwest of the 210-acre site includes a dairy farm. A church is located northwest of the site (north of Old Highway 9 SW).

Site Vicinity

Beyond the specific immediate land uses described above, the following is a description of the land use patterns in the general site vicinity:

- **North** – The general area to the north of the site, across Old Highway 9 SW, is developed with rural residential and agricultural uses. Approximately 1 mile to the northeast is the town of Grand Mound.

- **East** – The general area to the east and southeast of the site is developed with rural residential and agricultural uses. The I-5 corridor is located approximately 1 mile to the east of the site. East of the I-5 corridor is primarily undeveloped land. The City of Centralia is located approximately 6.5 miles southeast of the site.

- **South** – The general area to the south and southwest of the site is undeveloped and contains large areas of vegetation. Scattered agricultural and rural residential uses are located in this area.
- **West** – The area to the west and northwest of the site is developed with rural residential and agricultural uses. The Rochester Primary, Elementary and High Schools are located approximately 0.5 miles northwest of the site. The town of Rochester is located approximately 3 miles to the northwest of the site.

Existing land uses in the area surrounding the site that could be potentially sensitive to a prison reception center use could include: a church located northwest of the site and rural residential uses located north of the Old Highway 9 SW. The Rochester Primary, Elementary and High Schools located 0.5 miles northwest of the site would not be considered sensitive uses due to their distance from the site and intervening uses. No other uses considered potentially sensitive to a reception center use are located within 0.5 miles of the site.

Buildings in the vicinity of the Thurston County Site are primarily low-rise, one to three-story structures. Larger-scale buildings in the vicinity include some of the onsite facilities, and buildings associated with the dairy farm to the northwest and high school to the west.

Source: EA|Blumen, Google, 2011

EA | BLUMEN

Figure 3.7-7

Thurston County Site - Existing Land Uses

Existing Zoning and Comprehensive Plan Designation

Comprehensive Plan Designation

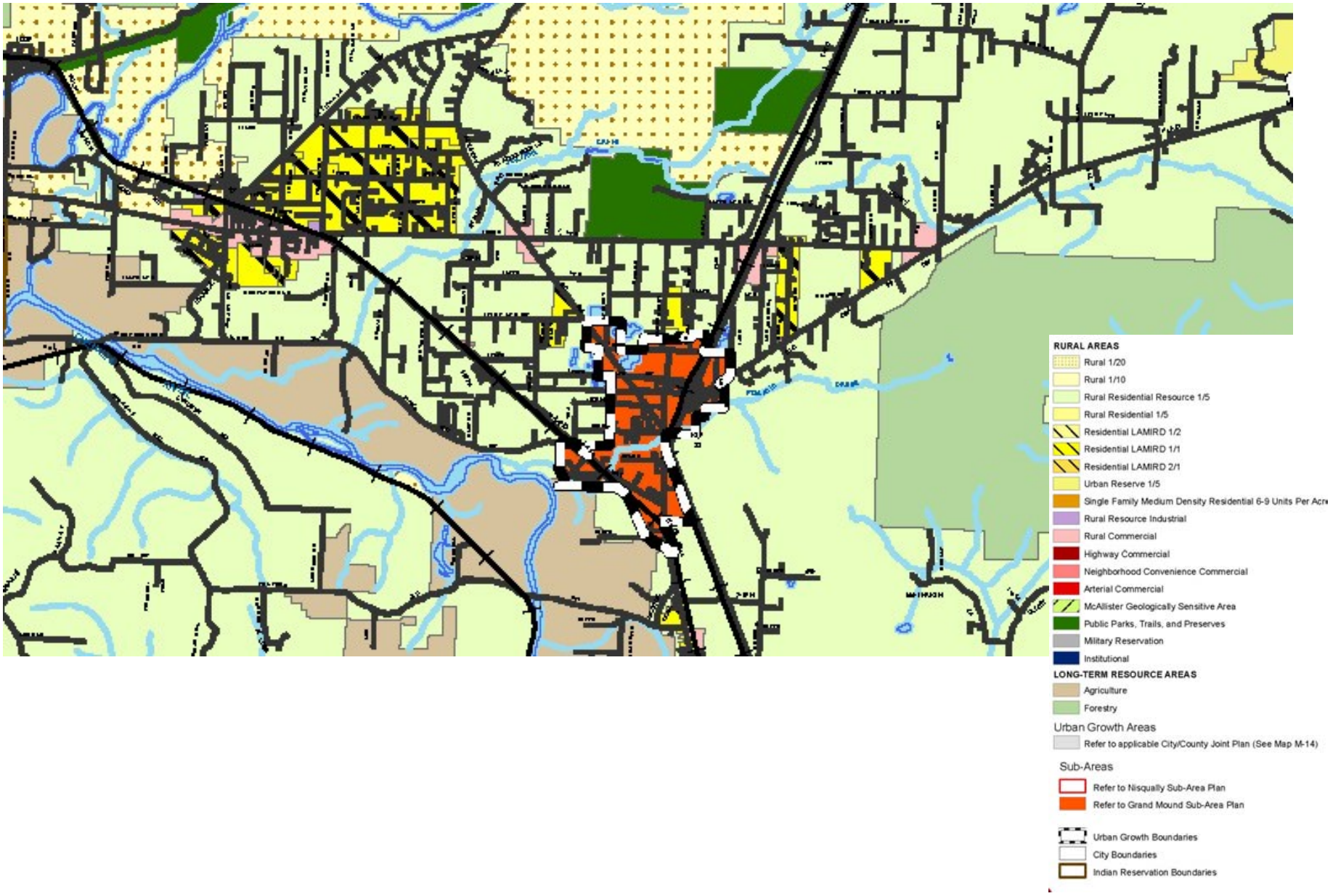
As shown in **Figure 3.7-8**, the currently developed northern 55-acres of the Thurston County Site is located within the Thurston County Urban Growth Area boundary, within the Grand Mound Subarea. The *Grand Mound Subarea Plan* designates the site as "Planned Industrial District". The purpose and function of the planned industrial district is to provide for industrial development under controls to protect the nearby uses of land, to stabilize property values primarily in those areas not suitable for the light industrial zoning designation, and to encourage comprehensive planning of the entire industrial site within a park-like environment. Certain special uses, such as public correctional facilities, are also considered compatible uses within this district, subject to approval of a special use permit. The Planned Industrial District is characterized as being on or near a major arterial highway or other transportation facilities, and close to developing cities, developing community centers or relatively intense residential development

The southern 155-acres of the site are located within the Thurston County Urban Growth Area but are not within the Grand Mound Subarea. This area is designated as Long-Term Agriculture in the *Comprehensive Plan*. It is intended that agriculture be the primary use in this district and that other uses be sited so as to minimize their impact on, or conflicts with, surrounding agricultural uses.

Zoning

As shown in **Figure 3.7-9**, the Thurston County Zoning Code (Title 20 of the Thurston County Code), designates the northern 55-acres of the site as "Planned Industrial District". The southern 155-acres are zoned as "Long Term Agriculture".

See Section 3.8, **Relationship to Plans, Policies and Regulations**, for additional information about zoning and comprehensive plan land use designations.



Source: EA|Blumen, Google, 2011

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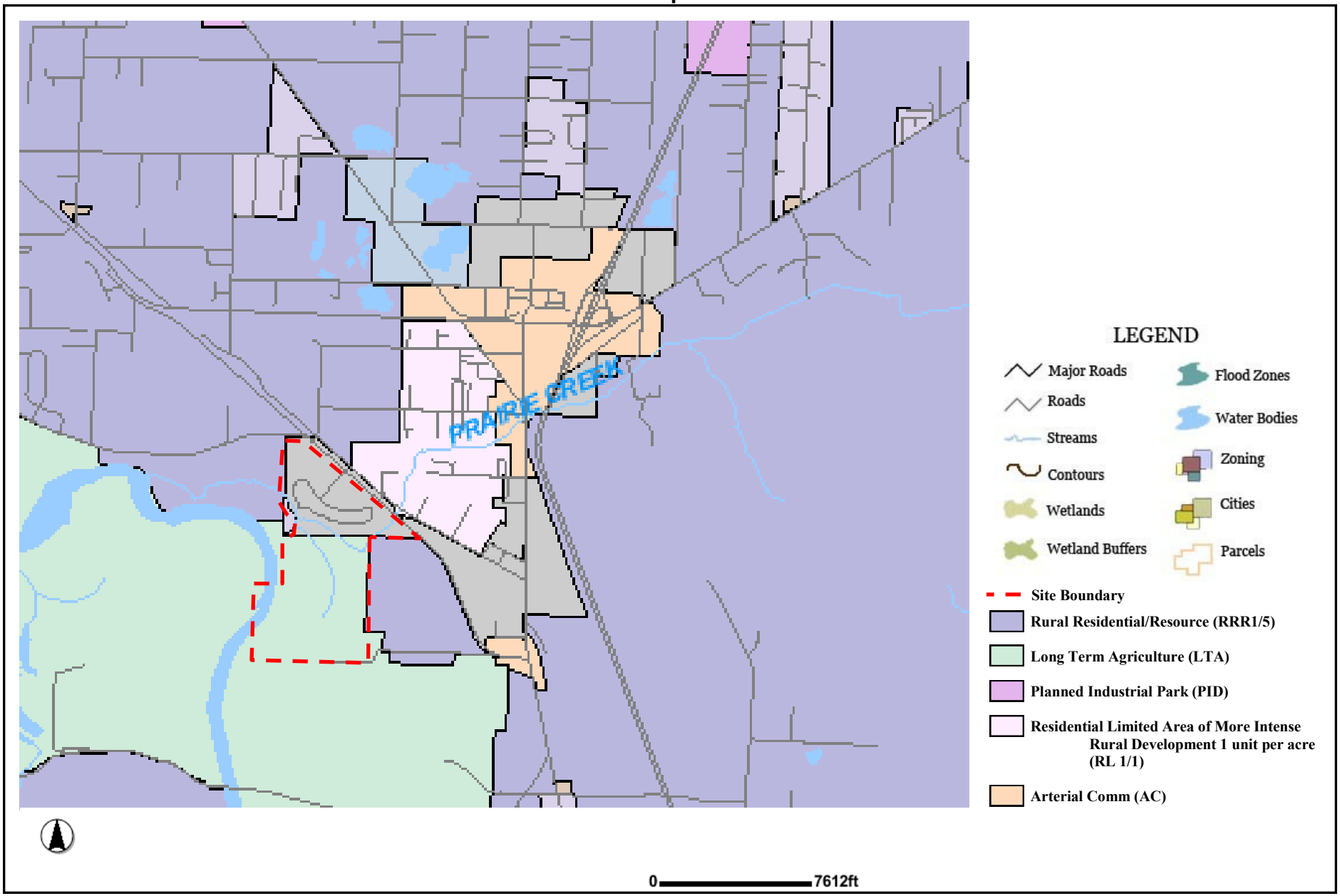
Figure 3.7-8

Thurston County Site - Comprehensive Plan Designation



Source: EA|Blumen, Google, 2011

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Figure 3.7-9

Thurston County Site - Existing Zoning

3.7.2 Impacts

The Proposed Actions involve the siting, construction and operation of a Department of Corrections (DOC) prison reception center at any one of the three site alternatives, along with other actions that may be taken to authorize or facilitate the siting, construction and operation of the facility. The Proposed Actions would allow for the transformation of any one of the existing sites from the current use(s) to a prison reception center constructed and operated by the DOC. The amount of new building area and operational site population would increase compared to current site(s) conditions; the level of increased building area and increased site population would vary between the sites given their various levels of current development.

The types of land use impacts that could potentially occur under the Proposed Actions and EIS Alternatives generally relate to direct impacts (i.e. related to construction, displacement of uses, conversion of uses, changes in activity levels, relationship to surrounding land uses, etc.) and indirect impacts (i.e. potential for a transition in land uses, changes in character of an area). The aggregate result of direct and indirect land use impacts can convey a general understanding of whether or not a proposed land use, such as a prison reception center, would be compatible or would be in conflict with surrounding land uses. It is important to note that compatibility can be viewed subjectively, and in relation to a prison reception center, perceptions about public safety and other factors can affect ones conclusions about compatibility.

Bremerton Site

This section describes the potential direct and indirect land use impacts associated with development of the *Westside Prison Reception Center* at the Bremerton Site.

Direct Impacts

Construction

Construction activities associated with development of the *Westside Prison Reception Center* on the Bremerton Site would include: removal of existing vegetation; grading; construction of new site infrastructure including driveways and utilities; and, construction of new buildings.

Potential land use impacts associated with site preparation and building/infrastructure development would generally relate to clearing, grading and construction truck traffic. These activities would result in periodic impacts to adjacent land uses over the approximately two-year buildout period. Construction-related impacts would include additional amounts of air pollution as a result of construction-related dust, emissions from construction vehicles and equipment; increased noise from construction activities; soil erosion resulting from removal of vegetation; and, increased traffic associated with construction vehicles and construction workers. These activities would result in temporary impacts to specific adjacent uses when site construction is proximate to those areas (see Section 3.1, **Earth**, Section 3.2, **Air Quality,** and Section 3.6, **Noise**, for details). Certain land uses on or adjacent to the site that would potentially be sensitive to construction activities, could include the existing rural residential uses located southwest of the site (near the intersection of SR 3 and SW Lake Flora Road). Given the distance of the majority of the construction from this area, the retention of existing intervening

vegetation and the intervening SW Lake Flora Road, temporary construction-related impacts would not be anticipated to be significant. These temporary impacts would be further mitigated by adhering to all applicable construction activity regulations, including Puget Sound Clean Air Agency air quality regulations, temporary erosion and sediment control measures, and City of Bremerton noise regulations (BMC Chapter 6.32) (see Section 3.2, **Air Quality** and Section 3.6, **Noise**, for details).

Construction activities would also occur in general proximity to the existing Christmas tree farm to the east and the Bremerton National Airport to the north. Given the distance of the majority of construction from these areas, the retention of existing intervening vegetation and the implementation of identified mitigation measures, temporary construction related impacts would not be anticipated to be significant. DOC would coordinate with the Port of Bremerton to ensure that construction activities would not impact airport operations or safety (i.e., dust, noise, lighting, cranes.)

No existing land uses would be displaced to accommodate development of the site as a new prison reception center.

Conversion of Uses

Development of the proposed *Westside Prison Reception Center* at the Bremerton Site would result in the permanent conversion of an undeveloped site to a prison reception center facility. With development, the amount of area in building footprint and parking would increase and the amount of vegetation would decrease, see **Figures 2-7** and **2-8**. Approximately 27.5 acres (46 percent) of the 60-acre site would be converted to buildings, surface parking and access drives. Approximately 12 acres would be in landscaping and 10 acres would be in open space (37 percent of the site). The remaining 10.5 acres (18 percent) would remain in natural vegetation.

As described in **Chapter 2,** the proposed prison reception center at this site would be located in the western portion of the site and would be oriented in a east/west direction – generally parallel with the north property line. Parking and services located outside of the secure main building would be located in proximity to SW Lake Flora Road (setback approximately 200 ft. from the roadway) with the secure main building behind. The secure portion of the building would be two stories in height and supporting structures outside of the main building would be one-story in height. The main building would be setback approximately 500 ft. from SW Lake Flora Road.

A single access drive would provide vehicular ingress/egress to the site from SW Lake Flora Road. As shown by **Figure 2-8**, the main access drive would be located in the southeastern portion of the site and would provide primary access for busses, staff and visitors.

Land Use Intensity. The Bremerton Site is currently undeveloped. With the proposed prison reception center, the intensity of the site's use would shift to a facility staffed and operational 24-hours a day, 7 days a week; with the majority of site activities occurring during normal business hours.

Activity levels (i.e. noise, vehicular traffic, etc., associated with increased site population) on the site would increase substantially with operation of the prison reception center, as compared to existing conditions. The new activity would primarily relate to: vehicle trips to and from the site associated with employees, inmate transports, visitors, deliveries, and, volunteers. The

vehicular traffic associated with the prison reception center would use the roadways adjacent to the site, (SR 3 and SW Lake Flora Road) and would contribute to traffic conditions associated with these roadways. Noise associated with the facility would mainly result from vehicular traffic and on an occasional basis from building HVAC systems. Small outdoor, exercise yards would be provided immediately adjacent to the cells, within the building's exterior walls. No recreational areas and their associated potential noise are proposed outside of the confines of the prison reception center building.

As the prison reception center is primarily surrounded by undeveloped land, the land use intensity of the proposed prison reception center would be compatible with the immediately surrounding land uses. The level of land use intensity on the site would be comparable to the nearby Bremerton National Airport.

There is presently a moderate level of activity in the site vicinity due to the existing commercial/industrial land uses in the area, vehicular and truck traffic on surrounding roads and the activity associated with operations of the Bremerton National Airport. The proposed use would contribute to and increase activity levels in the general area.

Further, the SKIA's *Subarea Plan* envisions potential future development of the site and the SKIA area in industrial uses. These uses would increase the land use intensity (density, activity levels, noise, light, glare, etc.) surrounding the site. Development of the proposed prison reception center at the site would result in activity levels similar to the assumed future development levels in the SKIA area.

Relationship to Surrounding Uses. The relationship of the proposed new land use (prison reception center) with surrounding land uses is primarily a function of the intensity of new uses (such as the type of site uses, and level of activity associated with the new use), intensity of the surrounding uses, proximity of new uses to surrounding uses, and the existence of any buffers/separators between new and surrounding uses.

In addition, the prison reception center is proposed as a secure, self-contained facility, with security fencing provided around the bus and service delivery yards and at the site perimeter property lines. Approximately 10.5 acres of vegetation surrounding the facility would remain intact and would provide a buffer between onsite and offsite uses (see **Figure 2-7** for details).

As indicated earlier in this section, development of the proposal on the Bremerton Site would convert the undeveloped site to approximately 356,000 sq. ft. of prison reception center use with associated levels of activity. In general, the proposed prison reception center would be compatible with existing undeveloped, commercial, municipal and industrial uses in the area. Potentially sensitive land uses in the area include the single-family residential uses to the west. The relationship of the prison reception center use on the Bremerton Site with surrounding uses is as follows:

- **East and South** – As described earlier, the area to the east and south of the site is currently undeveloped and vegetated. Although the levels of development and activity on the site would be substantially greater than the surrounding undeveloped area to the east and south, the proposal would not be considered incompatible with the adjacent undeveloped land.

Given the approximately 1,000 ft. of vegetated area between the prison reception center on the Bremerton Site and the Christmas tree farm further to the east, significant land use impacts in this area would not be anticipated.

- **North** – As described in **Section 3.7.1**, the proposed reception center would be located in Bremerton National Airport Zone 6 – Traffic Pattern Zone. Although Zone 6 (the lowest safety risk zone) is a conceptual area with the lowest level of increased safety risk associated with aircraft operations, because a designation is assigned to this area, area within this zone is considered to have a level of increased risk. The airport indicates that "as long as the facility itself is not located along the extended runway centerline (Zone 2 or 4), it should be compatible / appropriate within this zone."[3] Within each of the six zones, WSDOT Aviation has identified the types of land use patterns that could be appropriate and, in some instances, the density of development that may be possible. In Zone 6, the guidelines indicate that correctional facilities are uses that "may be compatible with airport operation depending on their location, size, bulk, height, density and intensity of use." The DOC would coordinate with the Port of Bremerton to ensure facility design was compatible with the adjacent airport use and compliant with the WSDOT guidelines.

- **West** – Existing land uses to the west include primarily undeveloped area with several single-family residential homes near the intersection of SR 3/SW Lake Flora Road. Some could perceive a prison reception center as incompatible with the single family residential uses located to the northwest of the site (near the intersection of SR 3 and SW Lake Flora Road). However, the residential uses would be separated and buffered from the proposed *Westside Prison Reception Center* by approximately 600 ft. of mature vegetation and topography, as well as the intervening SW Lake Flora Road. Significant land use impacts to these sensitive uses would not be expected due to their relative distance from the site, intervening uses and topographic barriers.

Building Height/Bulk/Scale. Existing buildings in the area surrounding the Bremerton Site are mainly low-rise, one to two-story tall structures that vary in size. The proposed prison reception center at the Bremerton Site would be a two-level, approximately 356,000 sq. ft. building. The height of the proposed building would be consistent with other buildings in the site vicinity. The bulk and scale of the proposed prison reception center would be greater than the residential structures but would be similar to other large-scale buildings in the area such as the Bremerton National Airport. Therefore, the proposed prison reception center building is considered largely compatible with the height/bulk and scale of buildings in the site vicinity. See also Section 3.10, **Aesthetics**, for additional information on height, bulk and scale impacts.

The height of the two-story prison reception center structure would not be anticipated to affect airport operations. The proposed communications antenna (assumed to be less than 100 feet in height) could impact airport operations depending on the location.

The DOC would coordinate with the Port of Bremerton to ensure facility design was compatible with the adjacent airport use and compliant with all regulations regarding building heights in Airport Safety Zone 6.

[3] Personal communication. August 17, 2011. Fred Salisbury, Director, Airport Operations and information obtained from Bremerton National Airport's website. (http://www.airnav.com/airport/KPWT).

The SKIA's *Subarea Plan* anticipates development of industrial uses in the area surrounding the site including large scale facilities that would be compatible with the proposed prison reception center use.

Zoning Classification and Land Use Designation. The City of Bremerton *Comprehensive Plan* and the South Kitsap Industrial Area Subarea Plan designates the site as M/IC, a Manufacturing and Industrial Center.

The current zoning of the site is Industrial. Among the uses listed as conditionally permitted in the Industrial Zone by the Bremerton Municipal Code is Group Residential Facility – Class II. According to the Bremerton Zoning Code,[4] the definition of Group Residential Facility – Class II includes "*housing of persons needing correctional or mental rehabilitation*". Because the proposed *Westside Prison Reception Center* can be considered "*housing persons needing correctional rehabilitation*", the proposal is considered a conditionally permitted use in the Industrial Zone. See Section 3.8, **Relationship to Plans and Policies and Regulations**, for a detailed discussion of the regulatory processes required to accommodate the prison reception center use at the Bremerton Site.

Indirect Impacts

Prison reception center use on the Bremerton Site would contribute to the cumulative employment growth and intensification of land uses in the City of Bremerton, including the SKIA area. Given the location of the site within the UGA, the Comprehensive Plan vision calling for economic development of the area, ability to provide services such as sewer and water, and the sites location near the areas primary transportation corridor, significant cumulative impacts are not anticipated. The establishment of a major employment generation facility on the site would provide the potential for increased economic activity in the area which could be served by existing businesses in the area. Increased employment on the site would also contribute to the demand for new businesses in the area. It is assumed that any new service uses in the area would be consistent with the City of Bremerton's *Comprehensive Plan* and zoning regulations and significant impacts would not be anticipated.

Conclusion

Operation of the proposed *Westside Prison Reception Center* at the Bremerton Site would result in certain direct land use changes. The undeveloped land on the site would be converted to a prison reception center. Activity levels (i.e. vehicular traffic and noise) on the site and in the site vicinity would increase with operation of the prison reception center, relative to existing conditions. There is presently a moderate level of activity in the site vicinity (i.e. due to operations of the Bremerton National Airport, vehicular traffic on surrounding roads and at surrounding industrial/commercial uses); the proposed use could generate an increase in activity levels at certain times of the day/days of the week, relative to existing conditions.

In general, the proposed prison reception center is not expected to result in significant indirect land use impacts, such as a major transition in uses in the area. Indirect impacts to the businesses adjacent to the site along SR 3 would not be expected due to the industrial character of the area. No significant direct or indirect land use impacts to the few single-family

[4] Bremerton Municipal Code, Chapter 20.94.030

residential uses nearby the site would be expected due to the existing and proposed separation/buffers, as well as the security features that would be incorporated into the facility.

Mason County Site

This section describes the potential direct and indirect land use impacts associated with development of the *Westside Prison Reception Center* at the Mason County Site.

Direct Impacts

Construction

Construction activities associated with development of the *Westside Prison Reception Center* on the Mason County Site would include: removal of some existing vegetation; grading; construction of new site infrastructure including driveways and utilities; and, construction of new buildings. Potential land use impacts associated with site preparation and building/infrastructure development would generally relate to clearing, grading and construction truck traffic. These activities would result in periodic impacts to adjacent land uses over the approximately two-year buildout period. Construction-related impacts would include additional amounts of air pollution as a result of construction-related dust, emissions from construction vehicles and equipment; increased noise from construction activities; soil erosion resulting from removal of vegetation; and, increased traffic associated with construction vehicles and construction workers. These activities would result in temporary impacts to specific adjacent uses when site construction is proximate to those areas (see Section 3.1, **Earth**, Section 3.2, **Air Quality**, and Section 3.6, **Noise**, for details). Certain land uses on or adjacent to the site that would potentially be sensitive to construction activities could include the existing single-family residence adjacent to the eastern boundary of the site. Given the distance of the majority of site construction from this area and the retention of existing vegetation, temporary construction impacts would not be anticipated to be significant. These temporary impacts would be further mitigated by adhering to all applicable construction activity regulations, including Olympic Region Clean Air Agency air quality regulations, temporary erosion and sediment control measures, and Mason County noise regulations (Mason County Code Chapter 9.36) (see Section 3.2, **Air Quality** and Section 3.6, **Noise**, for details).

No existing land uses would be displaced to accommodate development of the site as a new prison reception center.

Conversion of Uses

Development of the proposed *Westside Prison Reception Center* at the Mason County Site would result in the permanent conversion of an undeveloped site to a prison reception center facility. With development, the amount of area in building footprint and parking would increase and the amount of vegetation would decrease, see **Figures 2-9** and **2-10**. Approximately 24 acres (48 percent) of the 50 acre site would be converted to buildings, surface parking and access drives. Approximately 19 acres (38 percent) of the 50 acre site would be converted to open space and landscaping. The remaining 7 acres (14 percent) would remain in natural vegetation.

As described in **Chapter 2,** the proposed reception center at this site would be located in the central portion of the site and would be oriented in a north/south direction – generally parallel with the east property line. Parking and services located outside of the secure main building would be located in proximity to Dayton Airport Road (setback approximately 700 ft. from the roadway) with the secure main building behind (east). The secure portion of the building would be two stories in height and supporting structures outside of the main building would be one-story in height. The main building would be setback approximately 500 ft. from SR 102.

One access drive would provide vehicular ingress/egress to the site from SR 102. As shown by **Figure 2-9**, the main access drive would be located in the central portion of the site and would provide access for busses, staff and visitors.

Land Use Intensity. The Mason County Site is currently undeveloped. With the proposed prison reception center, the intensity of the site's use would shift to a facility staffed and operational 24-hours a day, 7 days a week with the majority of site activities occurring during normal business hours. Activity levels associated with the proposed prison reception center would be similar to the existing, nearby Washington Correctional Center.

Activity levels (i.e. noise, vehicular traffic, etc. associated with increased site population) on the site would increase substantially with operation of the prison reception center, as compared to existing conditions. The new activity would primarily relate to: vehicle trips to and from the site associated with employees, inmate transports, visitors, deliveries, and, volunteers. The vehicular traffic would use the roadways adjacent to the site (i.e. SR 102/Dayton Airport Road) and would contribute to traffic conditions associated with this roadway. Noise associated with the facility would mainly result from vehicular traffic and on an occasional basis from building HVAC systems. Small outdoor exercise yards would be provided immediately adjacent to the cells, within the building's exterior walls. No recreational areas and their associated potential noise are proposed outside of the confines of the prison reception center building.

As the prison reception center is primarily surrounded by undeveloped land, the land use intensity of the proposed prison reception center would be compatible with the immediately surrounding land uses, including the existing Washington Correctional Center (WCC).

There is presently a moderate level of activity in the site vicinity due to the existing Washington Corrections Center, Mason County Landfill and Sanderson Airport uses in the area and associated vehicular and truck traffic on surrounding roads. The proposed use would generate an increase in activity levels in the area.

Relationship to Surrounding Uses. The relationship of the proposed new land use (prison reception center) with surrounding land uses is primarily a function of the intensity of new uses (such as the type of site uses, and level of activity associated with the new use), intensity of the surrounding uses, proximity of new uses to surrounding uses, and the existence of any buffers/separators between new and surrounding uses.

In addition, the prison reception center is proposed as a secure, self-contained facility, with security fencing provided around the bus and service delivery yards and at the site perimeter property lines. Approximately 600 ft. of vegetation on the north, west and south boundaries of the site would surrounding the facility would remain intact and would provide a buffer between onsite and offsite uses (see **Figure 2-9** for details). The vegetation between the facility and the

adjacent residential use would be removed to accommodate redevelopment but would be restored with an approximately 150 landscaped buffer.

As indicated earlier in this section, development of the proposal on the Mason County Site would convert the undeveloped site to approximately 356,000 sq. ft. of prison reception center use with associated levels of activity. In general, the proposed prison reception center would be compatible with the existing undeveloped, municipal (PUD and landfill) and state (WCC) uses in the area. Potentially sensitive land uses in the area include the single-family residential use to the east. The relationship of the prison reception center use on the Mason County Site with surrounding uses is as follows:

- **North and South** – The area to the north of the site is primarily undeveloped and vegetated. Although the levels of development and activity on the site would be substantially greater than the surrounding undeveloped area to the north and south, the proposal would not be considered incompatible with the adjacent undeveloped land. The proposed prison reception center would be compatible with existing Washington Correctional Center located southwest of the site.

- **East** – Existing land uses to the east include an auto repair facility and single-family residence. Some could perceive the prison reception center as incompatible with the single family residential use located to the immediate east of the site. However, this residential use would be approximately 150 ft. from the proposed *Westside Prison Reception Center* The residential use would be separated and buffered from the access road and facility by an approximately 150 ft. landscape buffer of which approximately 25 ft. would be retained trees in the area adjacent to the home. In addition, the residential use is currently located immediately adjacent to an existing auto repair shop/auto yard and is subject to the noise and traffic associated with this use. Further, the single family residence is also in close proximity to the existing WCC, a facility generally similar in land use character to the proposed prison reception center use. Significant land use impacts to this sensitive use would not be expected due to its relative distance from the building site and landscape buffers.

- **West** – The area to the immediate west of the site is undeveloped but further west and northwest are municipal and industrial uses such as the Mason County Landfill and the PUD Peaking Station. Significant land use impacts from these nearby uses would not be anticipated.

Building Height/Bulk/Scale. The few existing buildings in the area surrounding the Mason County Site are mainly low-rise, one to two-story structures that vary in size. The proposed prison reception center at the Mason County Site is proposed as a two-level, approximately 356,000 sq. ft. building, as shown on **Figure 2-10,** Mason County Site Massing Diagram. The height of the proposed building would be consistent with other buildings in the site vicinity. The bulk and scale of the proposed prison reception center would be greater than the adjacent residential and auto repair yard buildings but similar to other large-scale buildings in the area such as the Washington Corrections Center. Therefore, the proposed prison reception center building is considered compatible with the height/bulk and scale of buildings in the site vicinity. See also Section 3.10, **Aesthetics**, for additional information on height, bulk and scale impacts.

Zoning Classification and Land Use Designation. As stated in Section 3.7.1, the *Mason County Comprehensive Plan* designates the site as Rural Residential – 20 Acres. Essential public facilities, such as the proposed *Westside Prison Reception Center*, are permitted with a special use permit if the proposal satisfies criteria as related to public health, safety and welfare, consistency with the comprehensive plan, hazardous conditions, adequate public facilities, compatibility with existing land uses and urban services. See Section 3.8, **Relationship to Plans, Policies and Regulations**, for the specific special use permit criteria.

Development permitted as a Special Use is allowed to exceed the maximum building footprint of 3,000 sq. ft. established for the RR-20 zone. The RR-20 zone limits Floor Area Ratio (FAR) to no more than 1:20, which would require a 356,000-sq.ft. building to be located on a site of approximately 164 acres, compared to the currently proposed 50 acre site. However, the FAR may be adjusted through the provisions of the special use permit process. See Section 3.8, **Relationship to Plans, Policies and Regulations**, for a detailed discussion of the regulatory processes required to accommodate the prison reception center use at the Mason County Site.

Indirect Impacts

Prison reception center use on the Mason County Site would contribute to the cumulative employment growth and intensification of land uses in Mason County. The establishment of a major employment generation facility on the site would provide the potential for increased economic activity in the area which could be served by existing businesses in the area. Increased employment on the site would also contribute to the demand for new businesses in the area. Any new service uses in the area are assumed to be consistent with Comprehensive Plan and zoning regulations and significant impacts would not be anticipated.

Conclusion

Operation of the proposed *Westside Prison Reception Center* at the Mason County Site would result in certain direct land use changes. The undeveloped land on the site would be converted to a prison reception center. Activity levels (i.e. vehicular traffic and noise) on the site and in the site vicinity would increase with operation of the prison reception center, relative to existing conditions. There is presently a moderate level of activity in the site vicinity (i.e. due to operations of the existing Washington Correctional Center, Sanderson Airport, Mason County Landfill and the associated vehicular traffic on surrounding roads); the proposed use could generate an increase in activity levels at certain times of the day/days of the week, relative to existing conditions.

A prison reception center located at the Mason County Site would be considered compatible with the existing land uses in the area. This is largely due to the predominance of undeveloped, municipal (PUD and landfill) and state (WCC) uses in the area. The only potentially sensitive land use in the area is the single-family residential use to the east. Due to the proposed landscape buffer and the presence of an adjacent commercial/industrial use, significant land use impacts would not be anticipated.

In general, the proposed prison reception center is not expected to result in significant indirect land use impacts, such as a major transition in uses in the area. No significant direct or indirect land use impacts to the single-family residential use immediately adjacent to the site would be expected due to the existing and proposed separation/buffers, as well as the security features

that would be incorporated into the facility. Overall, the proposed prison reception center at the Mason County Site would be considered compatible with the surrounding land uses, and no significant land use impacts would be anticipated.

Thurston County Site

This section describes the potential direct and indirect land use impacts associated with development of the *Westside Prison Reception Center* at the Thurston County Site.

Direct Impacts

Construction

Construction activities associated with redevelopment of the *Westside Prison Reception Center* on the Thurston County Site would include: demolition of certain existing buildings, removal of some existing vegetation; grading; construction of new site infrastructure including driveways and utilities; and, construction of new buildings.

Potential land use impacts associated with site preparation and building/infrastructure development would generally relate to building demolition, clearing, grading, and construction truck traffic. These activities would result in periodic impacts to adjacent land uses over the approximately two-year buildout period. Such potential land use impacts would be associated with site preparation and building/infrastructure development and would generally relate to clearing, grading and construction truck traffic. These activities would result in periodic impacts to adjacent land uses over the approximately two-year buildout period. Construction-related impacts would include additional amounts of air pollution as a result of construction-related dust, emissions from construction vehicles and equipment; increased noise from construction activities; soil erosion resulting from removal of vegetation; and, increased traffic associated with construction vehicles and construction workers. These activities would result in temporary impacts to specific adjacent uses when site construction is proximate to those areas (see Section 3.1, **Earth**, Section 3.2, **Air Quality,** and Section 3.6, **Noise**, for details).

To accommodate prison reception center development, demolition of certain existing buildings associated with the previous Maple Lane Juvenile Detention Facility located east of the maple tree-lined access road would be required (i.e. Pacific, Rainier, Olympic and Spruce residential buildings). Certain existing buildings located east of the main access road would be remodeled and utilized for reception center functions (i.e. New Commissary, Voc-Tech and Multi-Purpose buildings). In addition, the existing steam plant, associated steam tunnels and existing emergency generator building would be retained and upgraded to service new and existing buildings. Prison reception center uses in the portion of the site west of the main access road would include use of the existing parking lot and maintenance building for bus barn use. No existing buildings west of the main access road would be demolished.

Certain land uses on or adjacent to the site that would potentially be sensitive to construction activities, could include the existing rural residential and church uses located north of the site (north of Old Highway 9 and the railroad corridor). Given the distance of the majority of site construction from these uses, the retention of existing vegetation and the intervening road and railroad right-of-way, no significant impacts from the site's construction activities to these offsite uses would be anticipated. No significant impacts from construction-related activities to the

schools in the vicinity would be anticipated due to the relative distance, topography and intervening uses.

Users of the adjacent public driving range could experience temporary dust and noise impacts when construction activities occur in close proximity to the eastern boundary of the site. Due to the distance between the sites, the presence of the intervening Prairie Creek and vegetation area, construction impacts to the adjacent driving range would not be anticipated. These temporary impacts would be further mitigated by adhering to all applicable construction activity regulations, including Olympic Region Clean Air Agency air quality regulations, temporary erosion and sediment control measures, and Thurston County noise regulations (Thurston County Code Chapter 10.36 (see Section 3.2, **Air Quality** and Section 3.6, **Noise**, for details).

No existing land uses would be displaced to accommodate development of the site as a new prison reception center, as the existing Maple Lane Juvenile Detention Facility closed in June 2011.

Conversion of Uses

Development of the proposed *Westside Prison Reception Center* at the Thurston County Site would result in the permanent conversion of a former juvenile detention center facility to a prison reception center facility, a similar land use; development would occur in northern 55-acre portion of the site currently containing the Maple Lane Juvenile Detention Facility. With development, the amount of area in building footprint and parking would increase and the amount of vegetation would decrease, see **Figure 2-11**. Approximately 25 acres (12 percent) of the 210 acre site would be converted to buildings, surface parking, access drives and a service/bus yard. Approximately 10 acres (5 percent) of the 210 acre site would be converted to open space and landscaping. Approximately 20 acres of the existing Maple Lane Juvenile Detention Facility would remain (primarily in the area west of the existing maple tree-lined main access road). The remaining 155 acres (74 percent) which comprises the southern portion of the site would remain undeveloped.

As described in **Chapter 2** and as shown in **Figures 2-11** and **2-12**, the majority of the prison reception center on this site would be located east of the existing maple tree-lined main access road, including the main reception center building and surface parking accommodating 100 public parking spaces.

Two access drives would provide vehicular ingress/egress to the site from Old Highway 9. As shown by **Figure 2-11**, the main access would be via the existing maple tree-lined roadway that would provide primary access for staff and visitors. A secondary access drive from Old Highway 9 would be located east of the main access and would provide access for busses and service vehicles.

Land Use Intensity. The Thurston County Site is currently developed with buildings associated with the former juvenile detention facility. With the proposed prison reception center, the intensity of the site's use would reflect that of a facility staffed and operational 24-hours a day, 7 days a week; with the majority of activity occurring during normal business hours. Activity levels on the site would be similar to the former juvenile detention center that occupied the site.

Activity levels (i.e. noise, vehicular traffic, etc. associated with increased site population) on the site would increase with operation of the prison reception center, as compared to existing conditions, but would be similar to the level and type of activities associated with the former onsite juvenile detention center. The proposed onsite activities would primarily relate to vehicular trips associated with: employees, offender transports, visitors, deliveries, and, volunteer vehicular trips. The vehicular traffic would use the roadway adjacent to the site (Old Highway 9) the same as the former juvenile detention center and would contribute to the traffic conditions on this road. Noise associated with the facility would mainly result from vehicular traffic and on an occasional basis from building HVAC systems. Small outdoor exercise yards would be provided immediately adjacent to the cells, within the building's exterior walls. No recreational areas and their associated potential noise are proposed outside of the confines of the prison reception center building.

The land use intensity of the proposed prison reception center would be similar to the former Maple Lane Juvenile Detention Facility that occupied the site and would be compatible with the immediately surrounding land uses. The level of land use intensity on the site would be comparable to and compatible with the adjacent dairy farm.

There is presently a moderate level of activity in the site vicinity due to the existing rural residential uses in the area, vehicular and truck traffic on surrounding roads and the activity associated with operations of the adjacent dairy farm. The proposed use would contribute to and increase activity levels in the area over existing conditions but would be similar to the activity levels associated with the former juvenile detention center; no significant impacts would be anticipated.

Relationship to Surrounding Uses. The relationship of the proposed new land use (prison reception center) with surrounding land uses is primarily a function of the intensity of new uses (such as the type of site uses, and level of activity associated with the new use), intensity of the surrounding uses, proximity of new uses to surrounding uses, and the existence of any buffers/separators between new and surrounding uses.

In addition, the prison reception center is proposed as a secure, self-contained facility, with security fencing provided around the bus and service delivery yards and at the site perimeter property lines. Approximately 10 acres of landscaping/vegetation surrounding the facility would remain intact and would provide a buffer between onsite and offsite uses (see **Figure 2-11** for details).

As indicated earlier in this section, development of the proposal on the Thurston County Site would intensify the currently developed site with an approximately 356,000 sq. ft. prison reception center use with associated levels of activity. In general, the proposed prison reception center would be compatible with the existing undeveloped, municipal (water/sewer treatment plant) and agricultural uses in the area. Potentially sensitive land uses in the area include the residential uses to the north and northeast (north of Old Highway 9) and west (west of the adjacent dairy farm); school uses approximately 0.5 miles west of the site; and, the adjacent public driving range . The relationship of the prison reception center use on the Thurston County Site with surrounding uses is as follows:

- **North and East** – The area to the north of the site, across Old Highway 9 SW and the railroad tracks, is primarily rural residential in character. Some could perceive the prison reception center as incompatible with the single family residential uses located to the

north of the site. These residential uses would be a minimum of approximately 500 ft. from the proposed *Westside Prison Reception Center* and separated and buffered from the facility by mature vegetation around the perimeter of the site as well as the intervening Old Highway 9 and railroad corridor. In addition, the residential uses have been adjacent to an operating detention center facility until June 2011. Due to the distance of more than 0.5 miles between the site and the nearest school facilities, no compatibility issues would be anticipated. Significant land use impacts to nearby sensitive uses would not be expected due to their distance from the building site and vegetation buffers.

- **South** – The area to the immediate southeast is developed with a public driving range. The public driving range was also operational when the former Maple Lane Juvenile Facility was operational on the site. Due to the distance between the portion of the site assumed for development and the off-site use, the presence of the intervening Prairie Creek and vegetation area, land use impacts to the adjacent driving range would not be anticipated.

  The area to the south of the site is primarily undeveloped. Although the levels of development and activity on the site would be substantially greater than the surrounding undeveloped area to the south, the proposal would not be considered incompatible with the adjacent undeveloped land.

- **West** – The area to the immediate west of the site is developed with a dairy farm that was also located adjacent to the Maple Lane Juvenile Detention Facility. The existing distance from the dairy farm to onsite development and the vegetation buffer between the existing onsite facility and the dairy farm would not change under the proposal. Further west is developed with residential uses. The residential uses would be approximately 300 ft. from the proposed *Westside Prison Reception Center* and separated and buffered from the facility by mature vegetation around the perimeter of the site as well as the intervening Old Highway 9 and railroad corridor. No significant impacts would be anticipated.

Building Height/Bulk/Scale. Existing buildings in the area surrounding the Thurston County Site are mainly low-rise, one to two-story structures that vary in size. The proposed prison reception center at the Thurston County Site would be a two-level, approximately 356,000 sq. ft. building. The height of the proposed building would be consistent with other buildings in the site vicinity. The bulk and scale of the proposed prison reception center would be greater than the residential uses to the north of Old Highway 9 but would be similar to other large-scale buildings in the area such as the dairy farm to the immediate northwest of the site. In addition, building development associated with the *Westside Prison Reception Center* would be similar in character to existing building development on the site. Therefore, the proposed prison reception center building is considered compatible with the height/bulk and scale of buildings in the site vicinity.

Zoning Classification and Land Use Designation. The Thurston County *Comprehensive Plan* and the *Grand Mound Subarea Plan* designates the site as a Planned Industrial Center.

The current zoning of the site is Planned Industrial (PI). Thurston County Code Chapter 20.27 describes the PI zone, including purpose; permitted and special uses; and development and

performance standards. Certain special uses, such as public correctional facilities, are also considered compatible uses within this district, subject to approval of a special use permit. See Section 3.8, **Relationship to Plans, Policies and Regulations**, for a detailed discussion of the regulatory processes required to accommodate the prison reception center use at the Thurston County Site.

Indirect Impacts

Prison reception center use on the Thurston County Site would contribute to the cumulative employment growth and intensification of land uses in Thurston County. Given the location of the site within the UGA, the *Comprehensive Plan* vision calling for economic development of the area, ability to provide services such as sewer and water, and the sites location near the areas primary transportation corridor, significant cumulative impacts are not anticipated. The establishment of a major employment generation facility on the site would provide the potential for increased economic activity in the area which could be served by existing businesses in the area. Increased employment on the site would also contribute to the demand for new businesses in the area. It is assumed that any new service uses in the area would be consistent with Thurston County *Comprehensive Plan* and zoning regulations and significant impacts would not be anticipated.

Conclusion

Operation of the proposed *Westside Prison Reception Center* at the Thurston County Site would result in certain direct land use changes. The site of the former juvenile detention facility would transition to a prison reception center, a similar land use. Activity levels (i.e. vehicular and pedestrian traffic and noise) on the site and in the site vicinity would increase with operation of the prison reception center relative to existing conditions but would be similar to the former juvenile detention center. There is presently a low-to-moderate level of activity in the site vicinity; the proposed use could generate an increase in activity levels at certain times of the day/days of the week, relative to existing conditions but would be similar to the former juvenile detention center.

In general, the proposed prison reception center is not expected to result in significant indirect land use impacts, such as a major transition in uses in the area. No significant direct or indirect land use impacts to the few rural residential uses adjacent to the site would be expected due to the existing and proposed separation/buffers, as well as the security features that would be incorporated into the facility. Additionally, given the distance of over 0.5 mile, the similarity to the former juvenile detention facility use and the incorporated security features, significant land use impacts to the public school uses to the west would not be anticipated. Overall, the proposed prison reception center at the Thurston County Site would be considered compatible with the surrounding land uses, and no significant land use impacts would be anticipated.

Summary of Three Site Alternatives

Operation of the proposed *Westside Prison Reception Center* at the Bremerton and Mason County Sites would result in certain direct land use changes. The undeveloped land on the sites would be converted to a prison reception center resulting in increases in development and activity levels but significant impacts are not anticipated. The Thurston County Site is already developed and was formerly used as a detention center facility; redevelopment of the site as a

prison reception center would transition the site to a similar land use with similar development and activity levels as the proposed use.

Prison reception center development on the Bremerton Site would be located within Zone 6 (lowest safety risk zone) of the Bremerton National Airport. Zone 6 guidelines indicate that correctional facilities are a use that may be compatible with airport operations depending on the size, bulk, height, characteristics of the facility; the DOC would need to coordinate with the Port of Bremerton during design to assure compatibility with airport operations. The Mason County and Thurston County sites are not located within airport safety zone areas.

No significant direct land use impacts to nearby sensitive uses would be anticipated due to the existing and proposed separation/buffers, as well as the security features that would be incorporated into the facility.

In general, the proposed prison reception center is not expected to result in significant indirect land use impacts and any of the three alternative sites, such as a major transition in uses in the area.

Overall, the proposed prison reception center at the three sites would be considered compatible with the surrounding land uses, and no significant land use impacts would be anticipated.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives, but the increased demand for additional long-term prison space would remain. Potential land use impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** – Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts to land use resulting from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use from long-term prison functions to prison reception center uses at the WCC would not be anticipated to result in new land use impacts.

3. **Additional Long-Term Incarceration Capabilities** – Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for space as well as the displaced long-term prison space at the WCC due to increased prison reception center uses. Depending on the location of the additional long-term incarceration facilities, construction and operations of these facilities could result in land use impacts. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential land use impacts.

3.7.3 Mitigation Measures

All Sites

- Security features would be incorporated into the design and operation of the prison reception center to reduce the potential for security-related impacts (see **Chapter 2** for details).

- The building concepts associated with each site alternative generally indicate that building height and mass of the prison reception center facility would be largely compatible with that of structures proximate to each site (see Section 3.10, **Aesthetics**, for details).

- Security fencing would be provided around the staff parking area and ground-level housing units.

- Trees would remain intact and landscape screening would be provided along certain portions of the sites to reduce the potential for impacts to adjacent land uses (see Section 3.10, **Aesthetics**, for details on the proposed landscape plans).

Bremerton Site

- The Department of Corrections would coordinate building location, building design (i.e. heights, and construction activities with the Port of Bremerton to ensure that development activities would not impact airport safety or operations.

3.7.4 Significant Unavoidable Adverse Impacts

The Proposed Actions would convert the existing site(s) to prison reception center use. With implementation of the mitigation measures, no significant unavoidable adverse land use impacts would be anticipated with development of the proposed prison reception center at any of the three sites.

3.8 Relationship to Plans, Policies and Regulations

This section of the Draft EIS evaluates the consistency of the project alternatives with relevant plans and policies at the state, regional, county, and local level. Consistency with ongoing planning initiatives in each of the jurisdictions listed is also analyzed. This section was based on information provided by AHBL (2011).

3.8.1 Affected Environment

The section describes the applicable plans and policies for each of the alternative project sites, including any provisions that relate specifically to the proposed use of the site as a *Westside Prison Reception Center*.

Bremerton Site

Washington State Growth Management Act

The Growth Management Act of 1990 (RCW 36.70A) promotes coordinated land use planning by cities and counties in Washington State. Those counties planning under the Act, as well as the cities within them, are required to adopt comprehensive plans and countywide planning policies that address a range of issues, including land use, utilities, housing, transportation, capital facilities, and shorelines.

In addition, the Act requires counties and cities to include provisions for the location of essential public facilities in local comprehensive plans and to coordinate on the siting of these facilities. Essential public facilities include a variety of facilities, including many that are difficult to site, such as airports, solid waste handling facilities, mental health facilities, and correctional facilities. In addition, the law states that no local comprehensive plan or development regulation may preclude the siting of such essential public facilities. Counties and cities planning under the Growth Management Act are required to establish a process for identifying and siting essential public facilities. Kitsap County has adopted such a process, which is described below.

Puget Sound Regional Council VISION 2040

The Puget Sound Regional Council (PSRC) is a regional planning agency for the central Puget Sound with responsibility to plan specifically with regard to transportation, economic development, and growth management issues. The PSRC is the designated Metropolitan Planning Organization for the four-county (King, Kitsap, Pierce, and Snohomish) Seattle metropolitan area and is responsible for certifying that locally adopted comprehensive plans meet the transportation planning requirements of the Growth Management Act. PSRC adopted VISION 2040, a regional strategy for accommodating future regional growth in the Puget Sound, in 2008. VISION 2040 establishes an environmental framework, a regional growth strategy based on population estimates and forecasts, and a collection of multicounty planning policies to guide local governments as they update their own comprehensive plans and review applications for development. As part of the regional growth strategy, VISION 2040 generally designates the locations of transit corridors, Regional Growth Centers, and Manufacturing/Industrial Centers.

The South Kitsap Industrial Area (SKIA), which includes the Bremerton Site, is identified as a Regional Manufacturing/Industrial Center (MIC) in VISION 2040. MICs are locations intended to host manufacturing, industrial, and other high-intensity land use uses that will provide regional employment opportunities. VISION 2040 contains the following regional goals and policies regarding MICs.

Goal: The region will continue to maintain and support viable regional manufacturing/industrial centers to accommodate manufacturing, industrial, or advanced technology uses.

MPP-DP-8: Focus a significant share of employment growth in designated regional manufacturing/industrial centers.

MPP-DP-9: Provide a regional framework for designating and evaluating regional manufacturing/industrial centers.

MPP-DP-10: Give funding priority – both for transportation infrastructure and for economic development – to support designated regional manufacturing/industrial centers consistent with the regional vision. Regional funds are prioritized to regional manufacturing/industrial centers. County-level and local funding are also appropriate to prioritize to these regional centers.

Kitsap Countywide Planning Policies

The Washington State Growth Management Act requires counties planning under the Act to adopt countywide planning policies to ensure consistency between city and county plans. RCW 36.70A.210 describes their purpose as being written policy statements "used solely for establishing a county-wide framework from which county and city comprehensive plans are developed and adopted". The policies are not intended to alter the land-use powers of cities.

The Kitsap Countywide Planning Policies (KCWPP), last amended in 2007, reflect PSRC's regional growth management guidelines and address a range of topics. The following excerpted provisions are relevant to the proposed Bremerton Site.

Element C: Policies for Centers of Regional Growth

The Kitsap Countywide Planning Policies stress the concept of centers, which are compact, centralized activity areas linked to each other by transit. While the exact boundaries and character of each center are to be determined locally, the KCWPP contain the following provisions related to manufacturing/industrial centers.

2. *In Kitsap County, the following Regional Centers are applicable:*

    b. *Regional Manufacturing/Industrial Centers: South Kitsap Industrial Area. "Regional Manufacturing/Industrial Centers are major, existing regional employment areas of intensive, concentrated manufacturing and industrial land uses which cannot be easily mixed at higher densities with other uses. To preserve land at these centers for manufacturing, industry, and related uses, large retail uses or non-related offices are discouraged. Provision of adequate public facilities and services, including good*

access to the region's transportation system, is very important to the success of manufacturing/industrial centers." (VISION 2020)

Element G: Siting Public Capital Facilities of a Countywide or Statewide Nature

As described above, the Growth Management Act requires city and county governments to coordinate on the siting of public capital facilities of countywide or statewide significance. The KCWPP contain the following provisions related to EPFs.

1. *Identification of needed capital facilities:*

    b. *The Kitsap Regional Coordinating Council shall develop and maintain a list of public capital facilities needed to serve Kitsap County as a whole, based upon the County and Cities' Comprehensive Plans, the Countywide Coordinated Water System Plan, and other appropriate system plans. These include, but are not limited to, solid and hazardous waste handling facilities and disposal sites, water and wastewater treatment facilities, regional water supply intertie facilities, regional education institutions, airports, local correctional facilities, in-patient facilities including hospitals and regional park and recreation facilities, and government buildings that serve Kitsap County as a whole, including those essential public facilities as defined in RCW 36.70A.200.*

2. *Establishing a process and review criteria for the siting of facilities that are of a countywide or statewide nature:*

    a. *When an essential public facility as defined in RCW 36.70A.200 is proposed in Kitsap County, the Kitsap Regional Coordinating Council shall appoint a Facility Analysis and Site Evaluation Advisory Committee composed of citizen members selected by the member jurisdictions to represent a broad range of interest groups to evaluate proposed public facility siting. At a minimum, this evaluation shall consider:*

        i. *The impacts created by existing facilities:*

        ii. *The potential for reshaping the economy, the environment and community character;*

        iii. *The development of specific siting criteria for the proposed project, giving priority consideration to siting within Designated Centers;*

        iv. *The identification, analysis and ranking of potential project sites;*

        v. *Measures to first minimize and second mitigate potential physical impacts including, but not limited to, those relating to land use, transportation, utilities, noise, odor and public safety;*

        vi. *Measures to first minimize and second mitigate potential fiscal impacts.*

    b. *Certain public capital facilities such as schools and libraries that generate substantial travel demand should be located first in Designated Centers or, if not feasible to do so, along or near major transportation corridors and public transportation routes.*

c. Some public capital facilities, such as those for waste handling, may be more appropriately located outside of Urban Growth Areas due to exceptional bulk or potentially dangerous or objectionable characteristics. Public facilities located beyond Urban Growth Areas should be self-contained or be served by urban governmental services in a manner that will not promote sprawl. Utility and service considerations must be incorporated into site planning and development.

f. County and City comprehensive plans and development regulations shall not preclude the siting of essential public facilities.

g. Public facilities shall not be located in designated resource lands, critical areas, or other areas where the siting of such facilities would be incompatible.

3. Air transportation facilities in Kitsap County:

b. The County and the Cities shall ensure the safety of the community and airport users through compatible land use planning adjacent to airports and coordination of the airport with ground access. Examples would include not encouraging or supporting higher residential densities, schools, or hospitals near airports or airport approach corridors.

Element J: Countywide Economic Development

1. A general strategy for enhancing economic development and employment:

b. The County and Cities recognize that the economy in Kitsap County is very dependent on the U.S. Navy and diversification is necessary. The County and the Cities shall collaborate with ports, tribes, and other special districts to encourage economic growth and diversification that is consistent with comprehensive plans and policies for land use, transportation, public transit, regional water supply, capital facilities, urban governmental services and environmental quality.

c. Local governments are encouraged to utilize the Economic Development Council as a resource to provide advice on economic development needs, the potential for retaining and expanding existing industries, including the U.S. Dept. of Defense, and attracting new industries, especially those that would improve wage and salary levels, increase the variety of job opportunities, and utilize the resident labor force.

City of Bremerton Comprehensive Plan

Land Use Designations

The City of Bremerton Comprehensive Plan was updated in 2008 to create the Manufacturing/Industrial Center (MIC) designation and add MIC as a new center type. The 2008 amendments also designated SKIA as a Manufacturing/Industrial Center. The MIC designation is applied to areas intended to accommodate large amounts of regional employment and manufacturing and industrial land uses that cannot be easily co-located with other uses and activities. MICs are expected to have a different urban form and purpose than the rest of the City's centers. MICs are characterized by large contiguous parcels with good access to regional transportation infrastructure.

The Bremerton Official Land Use Map applies the MIC designation to the proposed project site, which lies within the SKIA MIC. Because of the size and location of the center, the SKIA MIC is anticipated to receive a large portion of the County's manufacturing and industrial employment growth.

City Services Element

Goal CS4: Allow essential public facilities to locate within the City, per city, regional, and state requirements.

Policy CS4A: Public facilities should showcase community design interests, guidelines, or standards, especially in their design and building processes. Encourage flexibility of use and maximum efficiency so that facilities and services will be harmonious with neighborhood needs, adjacent uses, and the environment.

Policy CS4B: Develop citing [sic] criteria and processes to assure timely and consistent locating of essential public facilities.

Goal CS21: Allocate resources to strengthen the economic base, diversify industrial and commercial enterprises, increase employment opportunities, increase the income level of residents, and enhance and revitalize neighborhoods.

Policy CS21B: Assist and encourage private investment and development that foster economic diversity and viability and preserve quality neighborhoods.

Goal CS24: Promote Smart Growth principles for development citywide, and within the City's Urban Growth Area.

Policy CS24A: Support countywide planning policies, particularly the coordination efforts of the Kitsap Regional Coordinating Council.

Land Use Element

Goal LU1: Identify and enhance distinctive neighborhoods, communities, and centers throughout the City.

Policy LU1A: Designate neighborhoods, communities, and Centers through the City.

Goal LU3: Create an environment that will promote growth.

Policy LU3A: Modify existing zoning designations and categories to provide sufficient industrial, commercial, and mixed use for new business opportunities. Maintain an inventory of available sites for new development, especially within designated Centers.

Policy LU3B: Pre-qualify key areas and sites for environmental permitting through such devices as subarea plans and related programmatic EISs.

Goal LU11: Provide for the viability of communities, neighborhoods, and Centers through strategic land use designations and infrastructure provisions.

Policy LU11C: When developing and locating new infrastructure and capital investments, ensure efficient use of community resources.

Goal LU16: Support appropriate land use policies and regulations to prevent siting of incompatible uses adjacent to general aviation airports.

Goal LU19: Coordinate and work cooperatively with the State of Washington, Kitsap County, and appropriate agencies for the siting of essential public facilities.

Policy LU19B: Develop criteria for the siting of essential public facilities in such a way as to minimize negative impacts to neighborhoods and other areas of Bremerton, while recognizing the needs of the people of the State and region for these facilities. The siting criteria should be based on the following principles:

- *Essential public facilities should be placed in locations where impacts to neighborhoods from traffic, light, glare, odors, noise, and similar effects is* [sic] *minimized.*
- *Essential public facilities that generate significant amounts of traffic should be located near or on State highways or on major arterials when possible.*
- *Essential public facilities that may introduce hazards to public safety should be carefully located to minimize such threats.*
- *The effect of the location chosen for EPF's on property values shall be considered.*
- *The location chosen for EPF's shall be consistent with the goals and policies, maps, and general principles in this Comprehensive Plan.*

Economic Development Element

Goal EC1: Promote a vibrant environment for economic development.

Policy EC1A: Promote and plan for an adequate supply of strategic lands and infrastructure for new employment and economic expansion.

Goal EC4: Promote the expansion of commerce.

Policy EC4C: Support expansion of transportation systems and facilities, particularly the Bremerton National Airport, to move products.

Policy EC4L: Encourage a more diversified economic base to increase elasticity in the local economy.

Goal EC6: Provide greater economic opportunity for residents.

Policy EC6E: Attract new employment opportunities throughout the City.

South Kitsap Industrial Area Subarea Plan

The City of Bremerton is in the process of creating a subarea plan for the South Kitsap Industrial Area (SKIA), the purpose of which is to guide and promote industrial development and economic growth in the area while protecting natural resources and fostering sustainable development patterns and use of innovative and sustainable infrastructure. The subarea plan and associated EIS were published in draft form in June 2011 for public review and comment. Adoption of the plan by the City of Bremerton is anticipated in late 2011.

The draft goals and policies contained in the SKIA Subarea Plan reinforce and expand on policy direction in the PSRC VISION 2040 Plan and the City of Bremerton Comprehensive Plan, focusing on employment growth and preservation of land within SKIA for industrial, manufacturing and other compatible uses. The draft subarea plan also contains a draft regulatory framework that outlines key development code topics and standards. The Draft Subarea Plan includes policy direction to prohibit residential and large retail uses, while de-emphasizing use based regulations to the extent practical. The Draft Plan allows local serving retail and other compatible non-industrial uses, emphasizes performance based standards to achieve internal land use compatibility and large vegetated buffers where SKIA abuts less intensive land uses. Other policies include promoting clustered development, extensive use of native landscaping, use of Low Impact Development stormwater management techniques, and promoting more sustainable buildings, site development, and infrastructure. The Final Subarea Plan is expected to include specific development regulations prior to adoption that will regulate land uses and development in SKIA.

City of Bremerton Municipal Code

Land use development in the vicinity of the proposed project site is currently regulated under Title 20 of the Bremerton Municipal Code (BMC). The project site is currently zoned Industrial, which allows for light and heavy industrial uses in locations with limited potential to affect residential uses. Land uses permitted outright in the industrial zone include automobile services, car washes, gas stations, light and heavy industry and manufacturing, warehouses, general office and business services (larger than 5,000 gross square feet), outdoor storage, and sports fields and stadiums. (BMC 20.94.020)

Under BMC Chapter 20.42, the proposed *Westside Prison Reception Center* would be considered a Group Residential Facility – Class II, which is defined as:

> *"a group care residence for juvenile delinquents, the mentally ill, persons serving a sentence in lieu of confinement,* ***persons needing correctional or mental rehabilitation****, or persons needing rehabilitation and treatment for social and/or family problems, drug or alcohol addiction, or abuse. This definition includes programs providing alternatives to imprisonment; transition back into the community including prerelease, work-release, and probationary programs that are under the supervision of a court, state, or local agency. Teaching of work or social skills may be provided in this class facility but it does not include drug or alcohol detoxification centers." (emphasis added)*

Class II group residential facilities are a conditionally permitted use in the Industrial zone, provided that the facility will not create an operational conflict with the efficiency of large-scale industrial uses (BMC 20.94.030). In addition, the City may place additional conditions on conditional use permits, such as site orientation, fencing, buffering, parking configuration, lighting, access, and limits on hours of operation, in order to maintain consistency with the policies of the comprehensive plan and to ensure compatibility with adjacent land uses (BMC 20.58.020.e).

Development standards for the Industrial zone require a minimum front setback of 10 feet, and no minimum side or rear setbacks. Increased setbacks and visual screening are required for industrial properties adjacent to or across a public right-of-way from residential zones. Buildings intended for human occupation are limited to 50 feet in height, and where located adjacent to a residential zone, buildings shall be set back 1 foot for every foot of height over 35 feet. (BMC 20.94.060). The proposed setbacks and screening will likely exceed these requirements. Bremerton Municipal Code does not contain regulations for new construction in the proximity of airports.

Chapter 20.14 regulates Critical Areas in the City of Bremerton. Section 20.14.330.d.2 describes the process if Category II and III Wetlands may be impacted by development activities:

> *(2) Where nonwater-dependent activities are proposed, it shall be presumed that alternative locations are available, and activities and uses shall be prohibited, unless the applicant demonstrates that:*
>
> *(i) the basic project purpose cannot reasonably be accomplished and successfully avoid, or result in less adverse impact upon, a wetland on another site or sites in the general region; and*
>
> *(ii) All alternative designs of the project as proposed that would avoid or result in less of an adverse impact on a wetland or its buffer, such as a reduction in the size, scope, configuration, or density of the project, are not feasible.*
>
> *(iii) Full compensation for the acreage and loss functions will be provided under the terms established under BMC 20.14.340(f) and (g).*

State and Federal Aviation Regulations

Development in the vicinity of the Bremerton National Airport is influenced by a combination of state and federal regulations that are administered by the Washington State Department of Transportation (WSDOT) Aviation Division and the Federal Aviation Administration (FAA).

Washington Department of Transportation

While WSDOT does not have direct authority over local land use decisions, it provides information to local decision makers on airport land use compatibility and provides technical assistance to local jurisdictions upon request. WSDOT updated its Airports and Compatible Land Use Guidebook in January 2011. The Aviation Division emphasizes airspace protection and discourages local jurisdictions from permitting certain uses adjacent to airports, including

residences, schools, and hospitals. Most industrial and commercial uses are considered to be compatible with airports. (WSDOT, 2011)

The WSDOT Airports and Compatible Land Use Guidebook (Guidebook) contains descriptions of six recommended (non-regulatory) safety zones, based on accident location distribution. Each conceptual zone corresponds to a phase of aircraft take-off/landing operations and an associated accident risk that dictates the land uses and structure heights appropriate for that area. The Port of Bremerton, which owns Bremerton National Airport, indicates that neither the Port nor the City has adopted WSDOT's land use compatibility guidelines. Such could occur as part of the subarea planning effort that is underway for the City's South Kitsap Industrial Area. If the WSDOT zones are adopted, the proposed reception center for the Bremerton Site -- as currently sited and designed -- would be located in Zone 6 (see **Figure 3.8-1**). Zone 6 is the area where general aircraft traffic occurs. Because aircraft in Zone 6 are generally not engaged in initial take-off or final landing approach, Zone 6 has the lowest safety risk of the six zones.

The Guidebook lists uses or activities that may be compatible with airport operations. Table F-2 in Appendix F of the Guidebook specifically lists correctional facilities as having "Limited" compatibility in Zone 6. Limited uses may be compatible depending on their location, size, bulk, height, density and intensity of use. Table F-1 in Appendix 1 of the Guidebook does not limit the intensity of use when uses in Zone 6 are within the urban growth boundary.

Federal Aviation Administration

Like WSDOT, the FAA does not have direct authority over local land use decisions, but it discourages the development of incompatible uses near airports through its grant program, and by establishing standards that can be used to determine whether new structures would create an airspace obstruction. Part 77 of the Federal Aviation Regulations (14 CFR Part 77) establishes imaginary surfaces that delineate critical airspace around various classes of airports. New tall structures that extend above these surfaces may pose a danger to use of the airport. Developers who intend to construct a structure that could penetrate one of these airspace surfaces must notify the FAA prior to construction. The FAA may then conduct an aeronautical study of the proposed structure and issue a determination as to whether the proposed construction would constitute a hazard to air navigation.

FAA policy also discourages the construction of land uses or facilities that have a high potential to attract wildlife to an airport operation area due to an increased risk of strikes during take-off and landing. Facilities considered wildlife attractors include waste disposal sites, water management facilities (including stormwater detention), wetlands, dredge spoil stockpiles, agriculture, and golf courses. The FAA discourages siting such facilities within 5,000 feet of airports serving piston-powered aircraft and within 10,000 feet of airports serving turbine-powered aircraft. (FAA, 2007)

Mason County Site

Washington State Growth Management Act

As described earlier in this section, the Growth Management Act of 1990 (RCW 36.70A) requires cities and counties to adopt comprehensive plans and countywide planning policies that guide development, including the location of essential public facilities, such as airports,

Source: Integrus Architecture, 2011

EA | BLUMEN

Figure 3.8-1
Bremerton Site - Flight Path

solid waste handling facilities, mental health facilities, and correctional facilities. Mason County's policies regarding essential public facilities are described in 2.2.2 and 2.2.3.

Mason Countywide Planning Policies

The Washington State Growth Management Act requires counties planning under the Act to adopt Countywide Planning Policies to establish a framework for County and City comprehensive plans and promote consistency between City and County plans. The Mason Countywide Planning Policies (MCWPP) are integrated into the Mason County Comprehensive Plan, which was last amended in 2005. The policies address the thirteen goals of the Growth Management Act and reflect the collective vision of county residents. The following excerpted provisions are relevant to the proposed Mason County project site.

CWPP 4.1 *Mason County and the cities therein, along with public participation, shall develop a cooperative regional process to site essential public facilities of regional and statewide importance. The objective of the process shall be to ensure that such facilities are located so as to protect the environmental quality, optimize access and usefulness to all jurisdictions, and equitably distribute benefits/burdens throughout the region or county.*

CWPP 4.2 *Major public facilities that generate substantial travel demand should be sited along or near major transportation and public transit corridors.*

CWPP 8.1 *Encourage economic development throughout the County that is consistent with adopted comprehensive plans, promote economic opportunity for all citizens of the County, especially for unemployed and disadvantaged persons, and encourage growth in areas experiencing insufficient economic growth, all within the capacities of the County's natural resources, public services, and public facilities.*

CWPP 8.2 *Maintain and enhance natural resource-based industries including productive timber, agriculture, mining and fisheries industries. Encourage the conservation of productive natural resources, and discourage incompatible uses. Assure that adjacent land uses do not contribute to the demise of the long term commercial forest and agricultural production lands and the resource based industries associated with these areas.*

CWPP 8.6 *Discourage development activities in environmentally sensitive areas which may have a detrimental effect on public health, safety, environment, and fiscal integrity of the area.*

CWPP 8.7 *Increase economic vitality in Mason County through the creation of jobs that provide livable wages and which promote economic diversity, stabilization, and maintenance of a high quality environment.*

Mason County Comprehensive Plan

Land Use Designations

The Mason County Future Land Use Map designates the proposed project site as Rural Area (RA), which is the land use designation applied to all areas of the county not designated as Urban Areas, Resource Lands, Rural Activity Centers, or Hamlets. Rural areas allow for rural residential, farming, forestry, and recreation, as well as small-scale commercial, retail, and industrial uses, though the rural landscape is intended to remain dominant, supporting protection of natural areas and features. Urban levels of development are not allowed in Rural Areas, and resource uses, such as farming, forestry, aquaculture, and mining, are protected.

Rural Areas Policies

RU-500 *In rural areas, features of the rural landscape should be dominant. Uses other than farms, pastures, farm buildings, forestry, wood lots, and other resource-related industries, should be buffered or screened from public rights-of-ways and adjacent properties.*

RU-501 *New development in RAs should be guided by performance standards and design guidelines to enhance rural character, protect critical areas, and tailor development to the characteristics of individual sites.*

RU-505 *Other uses that should be allowed in RAs include tourism, horticulture, low profile recreation, home-based businesses and cottage industries accessory to a primary residential use, and other small scale businesses.*

RU-512 *Adjacent residential uses and non-residential uses in the Rural Area should be buffered or screened from each other. Existing uses will not be required to provide buffers or screens, except in the case of the expansion or intensification of use.*

RU-530 *Existing industrial and commercial uses should be allowed to expand in Rural Areas, provided that: they do not require urban levels of government service, they do not conflict with natural resource based uses, they are compatible with surrounding rural uses, any public services or facilities provided for the development shall be limited to that necessary for the development and shall not be provided in a manner which permits low-density sprawl, critical areas are protected, and they are contained on the existing lot.*

RU-531 *Resource-based industrial and commercial uses should be allowed to locate or expand in Rural Areas, provided that: they do not require urban levels of government service, they do not conflict with natural resource based uses, they are compatible with surrounding rural uses, any public services or facilities provided for the development shall be limited to that necessary for the development and shall not be provided in a manner which permits low-density sprawl, and critical areas are protected.*

Capital Facilities Policies

CF-102 *Ensure that future development bears a fair share of capital improvement costs necessitated by the development. The County shall reserve the right to collect mitigation impact fees from new development in order to achieve and maintain adopted level of service standards.*

CF-204 *New development which has potential stormwater impacts shall provide evidence of adequate stormwater management for the intended use of the site. This policy shall apply in all areas of the county.*

CF-206 *Building permits for any building necessitating wastewater treatment shall provide evidence of an adequate sanitary sewer system for the intended use of the building. This policy shall apply in all areas of the county.*

CF-401 *Identify and allow for the siting of essential public facilities according to procedures established in this plan. Essential public facilities shall include group homes, state and local correctional facilities, substance abuse facilities, and mental health facilities. Work cooperatively with the City of Shelton and neighboring counties in the siting of public facilities of regional importance. Work cooperatively with state agencies to ensure that the essential public facilities meet existing state laws and regulations which have specific siting and permitting requirements.*

CF 402 *Review proposed development regulations to ensure they allow for the siting of essential public facilities consistent with the goals, policies and procedures established in this plan.*

Economic Development Policies

Goal 1: Mason County shall promote economic vitality while protecting and maintaining a rural lifestyle, balancing business and industrial development with environmental protection.

Policy 1.1 *Recognize that environmental quality and economic development are complementary objectives that should be achieved simultaneously.*

Policy 1.2 *Support business activities in the rural areas and facilitate expansion and new development when consistent with the predominant rural character and state law.*

Goal 3: Support sustainable business and industrial development which: 1) Strengthens and diversifies the economic base; 2) promotes predominantly living-wage jobs and economic opportunity that preserves a high quality of life for all citizens, and; 3) develops and operates in a manner compatible with the natural environment.

Policy 3.1 *Promote, support, and strengthen existing business and industry, and assist in attracting new business to the county, adding to the diversity of economic opportunity and employment.*

Policy 3.2 *Support and coordinate economic expansion and diversification to support capital facilities, public transit and transportation, urban governmental services and balance business and industrial development with environmental protection.*

Policy 3.3 *Provide areas designated for industrial use large enough to accommodate a number of industrial uses in clusters, so that the area may be developed in a coordinated fashion and provided with a variety of parcel sizes.*

Policy 3.4 *Allow limited changes or expansion to non-conforming businesses in rural areas provided: 1) detrimental impacts to adjacent properties will not be increased or intensified; 2) proposed changes in use or expansion complies with adopted performance standards; 3) proposed change would not result in a formerly small operation dominating the vicinity; and, 4) expansion or change of use will be keeping with the rural character.*

Policy 3.5 *Protect long-term forest land use designations and maintain provisions that ensure compatibility between resource lands and adjacent land uses.*

Mason County Zoning Code

Rural Residential 20 Zone

Development in Mason County is governed by Title 17 of the County Code – Zoning. The zoning code contains development standards for the county's rural and resource lands, as well as the Shelton, Belfair, and Allyn Urban Growth Areas. The County's zoning map designates the proposed project site as Rural Residential – 20 Acres. The Rural Residential 20 (RR-20) zone is intended for residential uses on parcels of at least 20 acres in size, though other uses are allowed. In addition to single family residences, hobby farms, churches, local community and recreation centers, fire stations, fish hatcheries, telecommunications towers, and public utilities are allowed outright. Cottage industries are also allowed as accessory uses, and cemeteries and essential public facilities are allowed with a Special Use Permit.

Special Uses, including essential public facilities, may be approved in the RR-20 zone if the proposal satisfies all the following criteria, as determined by the hearing examiner:

1. *That the proposed use will not be detrimental to the public health, safety and welfare;*

2. *That the proposed use is consistent and compatible with the intent of the comprehensive plan;*

3. *That the proposed use will not introduce hazardous conditions at the site that cannot be mitigated through appropriate measures to protect adjacent properties and the community at large;*

4. *That the proposed use is served by adequate public facilities which are in place, or planned as a condition of approval or as an identified item in the county's capital facilities plan;*

5. *That the proposed use will not have a significant impact upon existing uses on adjacent lands; and*

6. *If located outside an urban growth area, that the proposed use will not result in the need to extend urban services. (MCC 17.05.044)*

Development standards for the RR-20 zone limit the floor area ratio of development sites to no more than 1:20, and non-agricultural buildings are limited to 3,000 sq. ft. in size. Building heights are also limited to 35 feet, except for agricultural buildings, telecommunications towers, and water tanks. Essential public facilities and churches are allowed to exceed 3,000 sq. ft. if permitted as a Special Use. Adjustments to the floor area ratio requirement can be requested through the special use permit process and approved by the hearing examiner. The property is surrounded by the existing Washington Corrections Center, a power plant, forest land, an auto recycler, and one residence.

Airport Overlay Zone

The Mason County Site is located approximately 1.3 miles northwest of Sanderson Field, a general aviation airport owned and operated by the Port of Shelton. Chapter 17.60 of the Mason County Code contains development standards for the Airport Overlay Zone, which is intended to minimize public exposure to safety hazards and excessive noise associated with Sanderson Field, as well as prevent development that would impair operation and future expansion of the airport. The code establishes land use compatibility zones surrounding Sanderson Field, with density limitations for each.

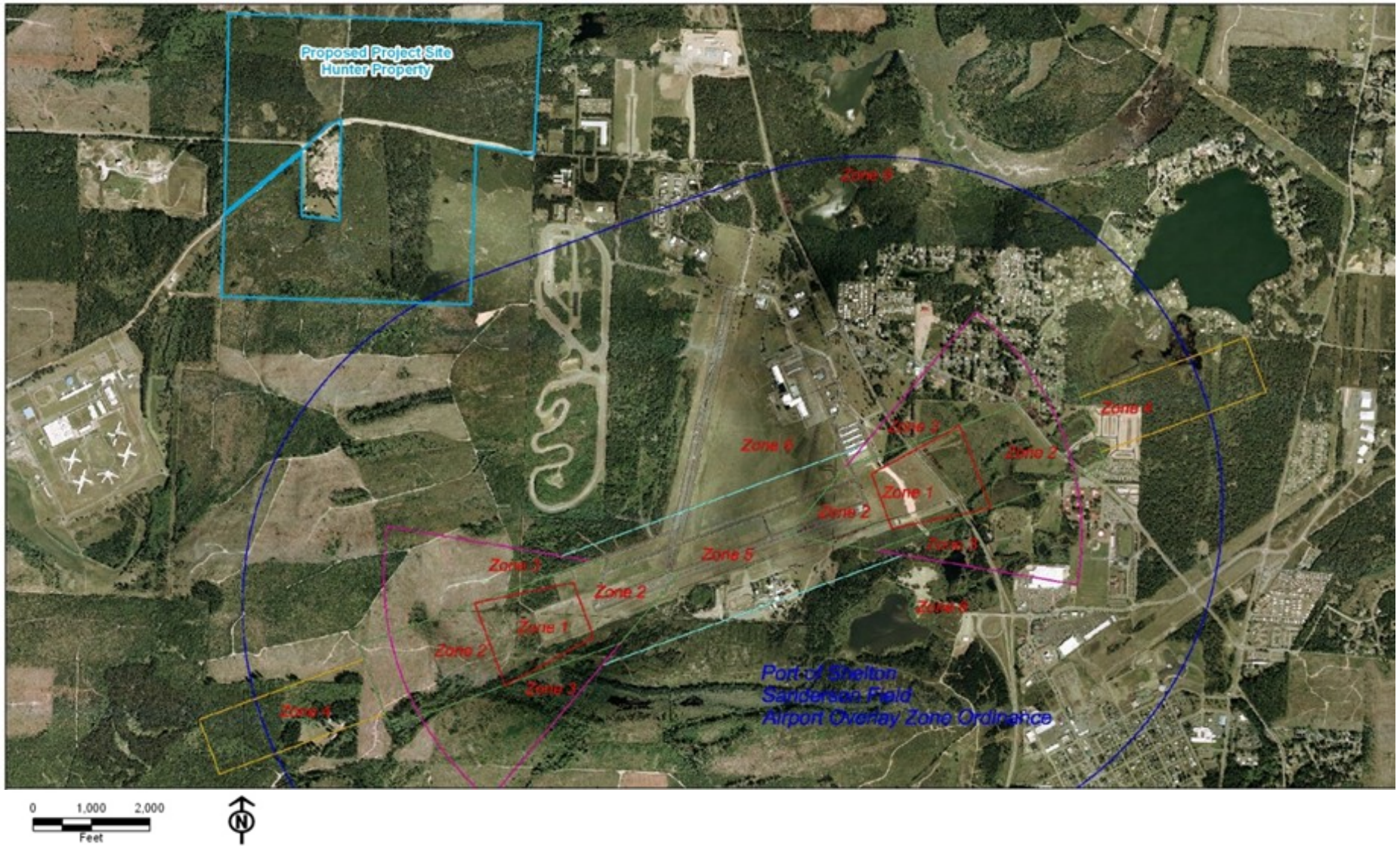
The entire Mason County Site and the majority of the overall approximately 500 acre property lies outside the Airport Overlay Zone, though a small eastern portion of the overall property falls within Airport Overlay Zone 6 – Traffic Pattern Zone. The main prison reception center building and the entire Mason County Site would be located outside of Airport Overlay Zone 6. The Mason County Site, the overall property boundary, and the Sanderson Field Airport Overlay Zone are shown in **Figure 3.8-2**.

The Mason County Code also establishes airspace protection zones to limit the height of structures and protect navigable airspace. Based on FAA criteria, the code establishes airspace surfaces that coincide with take-off and approach paths for aircraft using Sanderson Field, and structure heights are limited within these areas. For areas outside the direct flight path, the code establishes protection zones out to 10,000 feet from each runway and structure heights within this zone are limited to 254 feet; The Mason County Site is outside of this protection zone.

Thurston County Site

Washington State Growth Management Act

As described for the Bremerton and Mason County Sites, the Growth Management Act of 1990 (RCW 36.70A) requires cities and counties to adopt comprehensive plans and countywide planning policies that guide development, including the location of essential public facilities, such as airports, solid waste handling facilities, mental health facilities, and correctional facilities. Thurston County's policies regarding essential public facilities are described below.



Source: AHBL, 2011

Figure 3.8-2
Sanderson Field Airport Overlay Zone

Thurston Regional Planning Council

As a regional council of governments in Thurston County, Washington, Thurston Regional Planning Council (TRPC) carries out regionally focused plans and studies on topics such as transportation, growth management, and environmental quality to address challenges related to the region's growth. Decision-makers from 21 jurisdictions and organizations in Thurston County make up the Council, which meets monthly. TRPC provides information and education regarding the region and its emerging planning issues, but does not regulate land use in Thurston County. TRPC provided the interjurisdictional forum for developing the required process for identifying and siting essential public facilities described in Countywide Policy 4.1 described below.

Thurston County County-Wide Planning Policies

The Washington State Growth Management Act requires counties planning under the Act to adopt Countywide Planning Policies to establish a framework for County and City comprehensive plans and promote consistency between City and County plans and County subarea plans. The Thurston County County-Wide Planning Policies adopted in August 1993 provide a framework for the County, its seven cities and towns and three subareas, including the Grand Mound Subarea where the proposed reception center would be located. The following excerpted provisions are relevant to the proposed Thurston County Site.

II. Promotion of Contiguous and Orderly Development & Provision of Urban Services

2.1. Concentrate development in growth areas by:

a. Encouraging infilling in areas already characterized by urban growth that have the capacity and provide public services and facilities to serve urban development.

2.2 Coordinate Urban Services, Planning, and Standards through:

d. Development occurring within unincorporated urban growth areas shall conform to the development standards of the associated city or town;

e. Phasing extensions of urban services and facilities concurrent with development.

IV. Siting County-Wide and State-Wide Public Capital Facilities

4.1 Cooperatively establish a process for identifying and siting within their boundaries public capital facilities of a county-wide and state-wide nature which have a potential for impact beyond jurisdictional boundaries. The process will include public involvement at early stages. These are facilities that are typically difficult to site, such as airports, terminal facilities, state educational facilities, state or regional transportation facilities, state and local correctional facilities, solid waste handling facilities, and in-patient facilities including substance abuse facilities, mental health facilities, and group homes.

4.2 Base decisions on siting county-wide and state-wide public capital facilities on the jurisdiction's adopted plans, zoning and environmental regulations, and the following general criteria:

a. County-wide and state-wide public capital facilities shall not have any probable significant adverse impact on lands designated as critical areas or resource lands; and

b. Major public facilities that generate substantial traffic should be sited near major transportation corridors.

VI. Economic Development and Employment

City, town, and county governments in Thurston County encourage sustainable economic development and support job opportunities and economic diversification that provide economic vitality and ensure protection of water resources and critical areas. In order to attain an economic base that provides an adequate tax base revenue source, enhances the quality of life of community residents, and maintains environmental quality, the cities, towns, and county will:

6.2 Support the retention and expansion of existing public sector and commercial development and environmentally sound, economically viable industrial development and resource uses;

6.8 Encourage the utilization and development of areas designated for industrial use, consistent with the environmental policies in Section IX.

Thurston County Comprehensive Plan

The Thurston County Comprehensive Plan serves as the master plan to guide the county's physical development and the preparation of the county's subarea plans for special services, functions, or issues. It is primarily focused on goals and policies for rural areas, and defers to local subarea plans for goals and policies in urban growth areas. The Thurston County property is located in the Urban Growth Area for Grand Mound.

Land Use Element

The Land Use Element provides policies for the designation of Urban Growth Areas (UGAs) and the framework for development of subarea plans that are intended to accommodate unique features or needs of the subareas. The portion of the Thurston County property that is proposed to be used for the *Westside Prison Reception Center* is located in the Grand Mound Urban Growth Area and is described in the Grand Mound Subarea Plan section below.

The portion that is proposed to remain undeveloped is located in the County rural area and is designated Long Term Agricultural (LTA). The purpose of Agricultural land is Thurston County is to conserve it for uses such as crop production, livestock, or other agricultural products. The LTA portion of the property is separated from the development area by wetlands, Prairie Creek, and their regulated buffers.

Economic Development Element

The Economic Development Element recognizes that Thurston County is greatly influenced by its position as the seat of state government and its economy is dominated by government employment. Their reliance on one sector is of concern, however, the element recognizes that economies are drastically changing, which requires adaptability and responsiveness to fluctuating conditions. The Element is consistent with the County-wide Planning Policies. The most relevant objective and policy is:

> *OBJECTIVE B: Business Expansion, New Business, and Home Businesses.*
> *Land use permits and procedures should provide for expanding existing businesses, establishing new businesses which diversify the economy, and for home occupations and small-scale home-based industries.*
>
> *Policies:*
> 2. *The county should encourage business development in the Grand Mound Urban Growth Area, which is served by the county-owned water and sewer system.*

Capital Facilities Element

The Capital Facilities Plan was updated in December 2008 and covers a six-year period, 2009 – 2014. Water and Sewer Systems in the Grand Mound Urban Growth Area are in operation providing service to customers within the UGA.

OBJECTIVE 1-H: Sewer Systems:

1. *Thurston County should allow sewer systems in designated urban growth areas.*
3. *Where sewer systems are being provided to unincorporated rural areas or the Rochester-Grand Mound area, Thurston County should be the primary sewer system provider through the County Services Act.*

The Capital Facilities Plan includes procedural requirements for siting essential public facilities and defines correctional facilities as a Type One facility. These are required to provide notification and involvement of affected citizens and jurisdictions at least 90 days before submitting an application for an essential public facility. The Thurston Regional Planning Council may provide the project sponsor and affected jurisdiction(s) with their comments or recommendations regarding alternative project locations during this 90-day period.

3. *Essential public facilities shall not have any probable significant adverse impact on critical areas or resource lands, except for lineal facilities, such as highways, where no feasible alternative exists.*

4. *Major public facilities which generate substantial traffic should be sited near major transportation corridors.*

5. *Applicants for Type One essential public facilities shall provide an analysis of the alternative sites considered for the proposed facility. This analysis shall include the following:*

a. *An evaluation of the sites' capability to meet basic siting criteria for the proposed facility, such as size, physical characteristics, access, and availability of necessary utilities and support services;*
b. *An explanation of the need for the proposed facility in the proposed location; The sites' relationship to the service area and the distribution of other similar public facilities within the service area or jurisdiction, whichever is larger; and*
c. *A general description of the relative environmental, traffic, and social impacts associated with locating the proposed facility at the alternative sites that meet the applicant's basic siting criteria. The applicant shall also identify proposed mitigation measures to alleviate or minimize significant potential impacts.*
d. *The applicant shall also briefly describe the process used to identify and evaluate the alternative sites.*

6. *The proposed project shall comply with all applicable provisions of the comprehensive plan, zoning ordinance, and other county regulations.*

Cultural and Historic Element

The Maple Lane School building was constructed in 1914 and is listed on the National, State and Local Register as a historic site. Preservation of the county's historic resources in an integral part of the county's goals, objectives and policies along with the consideration of the protection of other valuable county natural and human-related resources. Changes to the property will need to be reviewed by the Thurston County Historic Commission. The most relevant objective and policy is:

OBJECTIVE A: Recognizing and Maintaining Archaeological and Historic Resources
The county should establish and maintain programs for recognizing and protecting important archaeological and historic resources. This objective should be integrated into all areas of the Thurston County Comprehensive Plan.

Policies:

8. *The county should encourage land uses and development proposals that retain or enhance archaeological and historic cultural resources and discourage the destruction or incompatible alteration of these resources.*

Grand Mound Subarea Plan

This subarea plan was developed by Thurston County in 1996 and updated in 1997. In 2006, several changes to the subarea plan were made by Thurston County with Resolution 13734 regarding transportation. The Grand Mound Subarea is consistent with and adopted as a part of the Thurston County Comprehensive Plan, including the County-Wide Planning Policies for siting essential public facilities.

The County expanded the Urban Growth Area boundary to include the Maple Lane School site in light of the state's plans to connect the facility to the county's planned sewer system. Commercial and industrial growth projections for the Grand Mound UGA determined that the Maple Lane School site is an example of a basic (export) industry because it exports services to the rest of the state. The key to Grand Mound's economic growth is its ability to attract basic industries that produce good s and services for outside markets. The study found that Grand

Mound's location along the I-5 corridor and planned sewer and water improvements enhances its attractiveness for economic development, particularly industrial growth.

The developable portion of the Thurston County Site is in the county Urban Growth Area and the land use designation is Planned Industrial. The Grand Mound Subarea Plan refers to the use of the Maple Lane site as follows:

> *"This designation also includes the developed portion of the Maple Lane School site, as correctional facilities are considered a compatible use within the designation, subject to approval of a special use permit.*
>
> *The purpose of the designation is to provide for industrial development in a way that protects the nearby residential areas surrounding the UGA, that protects the character and integrity of adjacent commercial areas within the UGA, and that encourages comprehensive planning of an entire industrial site. The designation allows a broad range of assembly, processing and storage uses, but does not allow gravel mining or some of the manufacturing uses permitted in the Light Industrial designation."*

The portion of the property that is to remain undeveloped is outside the Grand Mound Urban Growth Area and is designated Long Term Agricultural in the Thurston County Comprehensive Plan.

Thurston County Zoning Code

Development in Thurston County is regulated by Title 20 of the County Code – Zoning. The county's zoning map designates the development area of the site Planned Industrial (PI). The area that will not be developed is zoned Long Term Agricultural (LTA).

Thurston County Code Chapter 20.27 describes the PI Zone, including purpose; permitted and special uses; and development and performance standards. The purpose and function is to

> *"provide for industrial development under controls to protect nearby uses of land, to stabilize the property values primarily in those areas not suitable for the light industrial zoning designation, and to encourage comprehensive planning of the entire industrial site within a park-like environment. Certain special uses, such as public correctional facilities, are also considered compatible uses within this district, subject to approval of a special use permit."*

Allowed uses

The Thurston County Code Section 20.03.040 defines several types of correctional facilities, including Jails, Juvenile Detention Facilities, and Secure Community Transition Facilities. Jails and Prisons are most relevant to the proposed *Westside Prison Reception Center* and are defined as follows:

> *"Jail" means a public facility for the incarceration of people under warrant, awaiting trial on felony or misdemeanor charges, convicted but not yet sentenced, or serving a sentence of one year or less. This definition does not include facilities for programs providing alternatives to imprisonment such as prerelease, work release, or probation.*

"Prison" means a public facility for the incarceration of people convicted of felony crimes serving a court imposed sentence. This includes minimum security facilities which house inmates with less than three years remaining to serve who meet stringent public safety placement criteria established by the Department of Corrections, medium security facilities which have strict security standards including a fenced and patrolled perimeter, and high security facilities which offer the greatest level of security to minimize the potential for escape.

Thurston County Code 20.54 lists Jails as an allowed special use in the PI district. Prisons are a prohibited use. Section 20.07.060 describes the Director's authority to determine whether a use is allowed as follows.

1. *Determination. In the event a use is proposed which is not listed in the title as permitted, accessory or special use, the development services director shall determine whether the use should be treated as one of the listed uses. Such determination shall be based on:*

    a. *Similarity to a listed use;*
    b. *Consistency with the intent of the district in which the use is listed.*

2. *Appeal. Appeals of this determination may be made to the hearing examiner pursuant to Chapter 20.60, or a request submitted to the board of county commissioners for consideration of a text amendment.*

In a letter to the Washington Department of Corrections dated May 11, 2011, the County Director of Resource Stewardship indicated that they had made a determination that the proposed *Westside Prison Reception Center* meets the definition of a Jail because it is similar to the currently allowed use.

Special Uses

Special uses are not permitted outright in a zone because of potential incompatibility with the permitted uses of the zone. In order to determine whether such compatibility may be achieved, a discretionary review process is employed.

The Special Use Chapter 20.54 details general and specific development standards that apply to special uses. It requires that special uses comply with all of the applicable standards of the Special Use chapter and Zoning code. Relevant sections of the Special Use chapter include the following:

Section 20.54.040 – General Standards requires that the proposed special use is appropriate in the location for which it is proposed. This finding shall be based on the following criteria:

a. *Impact. The proposed use shall not result in substantial or undue adverse effects on adjacent property, neighborhood character, natural environment, traffic conditions, parking, public property or facilities, or other matters affecting the public health, safety and welfare. However, if the proposed use is a public facility or utility deemed to be of overriding public benefit, and if measures are taken and conditions imposed to mitigate adverse effects to the*

extent reasonably possible, the permit may be granted even though the adverse effects may occur.

Section 20.54.070 - Use-Specific Standards:

11.3 Essential Public Facilities

a. The applicant shall demonstrate that the proposed use will not have any probable significant adverse impact on critical areas; lands within any long-term agriculture district, long-term forestry district, or Nisqually agricultural district; or designated mineral resource lands, except for lineal facilities, such as highways, where no feasible alternative exists.

b. Major public facilities which generate substantial traffic shall be sited near major transportation corridors.

17.5 Jails.

a. General Requirements. Adequate sewage disposal facilities and water must be provided without diminishing the level of service for system users or others dependent upon the resource.

b. Location.

i. Jail sites shall not be located closer than five hundred feet from the boundary of a district in which the use is not allowed as a special use.
ii. Jail sites shall be located at least one mile from any school and any site for which a special use application for a school has been submitted.
iii. Jails shall be located such that law enforcement officers can respond to a call for assistance within five minutes under typical conditions.
iv. Advance life support service, as defined in RCW 18.73.030(19), must be available within five minutes under typical conditions.
v. The hearing examiner may lessen standards in subsections (17.5)(b)(i) and (ii) above if, in his or her opinion, a water body, freeway, or other barrier provides separation as effective as these standards.

c. Security.
The applicant shall submit a proposed security plan which, at a minimum, is consistent with applicable American Corrections Association security standards. This plan shall identify staffing levels and scheduling, building security, an escape search plan, and provisions for immediate public notification of escapes.

d. Design.

i. Size. Jails with a capacity for two hundred inmates shall be located on a site of at least fifteen acres. Jail sites shall contain an additional four acres for each additional fifty bed increase in capacity above this threshold.
ii. Landscaping/Buffers.

(A) The applicant shall submit a binding landscaping plan which serves to maintain or enhance the character of the area without jeopardizing security. This plan shall incorporate at least a twenty-five-foot landscaped buffer along public rights-of-way.

(B) The applicant shall install an eight-foot high fence in character with the neighborhood between the facilities and all property boundaries, with the exception of the landscaped street frontage, which effectively screens the site from adjacent properties. The hearing examiner may waive or lessen this requirement if he/she determines that, due to existing site features or the type or character of adjoining uses, the privacy and security of the occupants of adjoining properties can be maintained in the absence of a fence or with a lower fence.

(C) Barbed wire topped fencing shall not be visible from public rights-of-way.

(D) Outdoor activity areas located in residential districts shall not be visible from public rights-of-way or adjacent properties.

iii. Noise. The hearing examiner may require conditions to minimize potential noise impacts including, but not limited to, altering the location of outdoor use areas and noise generating facilities, and installation of noise reducing elements such as walls, berms, and landscaping.

iv. Lighting. Site lighting shall not produce levels of illumination or glare that would pose a nuisance or hazard for motorists on public rights-of-way or constitute a nuisance for occupants of adjacent properties.

v. Access. Jails shall have direct access to an arterial or collector unless the hearing examiner determines that access via a lesser classification of street would not be detrimental to neighborhood character and would not increase public safety risks.

Section 20.54.065- Applications for Essential Public Facilities:

> *"at least ninety days before submitting a special use permit application, the prospective applicant shall notify the affected public and jurisdictions of the general type and nature of the proposal, identify sites under consideration for accommodating the proposed facility, and identify opportunities to comment to the county on the proposal."*

Chapter 17.15 regulates new structures, or expansion or renovation of existing structures located in wetland buffer. Specific applicable sections include:

17.15.930.G.2 Alteration or Expansion of a Nonconforming, Nonresidential Use or Structure.

2. *An intensification of use is permitted provided that the use is contained within the existing structure, or area that has been used, and is not different in kind from the existing nonconforming use.*

17.15.940.B

> *"The review authority may reduce the standard wetland buffer for those areas which are functionally separated from a wetland and do not protect the wetland from adverse impacts due to a pre-existing road, structure or vertical separation. This provision shall not apply to*

a logging road constructed with or without a forest practices permit, or to any road or structure constructed in violation of this chapter."

Grand Mound Development Guidelines

In addition to the general and use specific standards provided in Chapter 20.54, Section 20.27.040 provides the development standards for the PI Zone. They include a provision that within the Grand Mound Urban Growth Area, the Grand Mound Development Guidelines (GMDG) shall apply. The GMDG provide standards for signs, landscaping, parking lots and roadways. They state that they apply to the construction of new structures in the Planned Industrial zone and:

B.2.c. Additions, expansions or remodeling of existing buildings and structures within any twelve month period when:

(i) The cost of additions, expansions or remodeling exceeds fifty (50) percent of the assessed value of the real property improvements; and
(ii) The existing layout of the building foundation does not preclude compliance with these guidelines; provided, that all guidelines that can be met shall be met in full or in part;

The Guidelines require retention of significant trees in required landscaping areas and landscaped buffers adjacent to roadways.

3.8.2 Impacts

The following subsection describes the relationship between previously described plans and policies with the establishment of the *Westside Prison Reception Center* for each of the three site alternatives.

Bremerton Site

The proposal would result in the construction of a 356,000 sq. ft. reception center, housing up to 1,024 offenders, within the SKIA subarea of southern Bremerton. As described in the Affected Environment section, development of the proposed project site would be regulated under local, county, and regional plans and policies, and consistency with each of the identified plans and policies is analyzed below.

Washington State Growth Management Act

Kitsap County and the City of Bremerton currently plan under the provisions of the Growth Management Act and have adopted policies for siting essential public facilities, as described in the Affected Environment section. Consistency of the proposed project with these policies is described below.

Puget Sound Regional Council VISION 2040

The PSRC's policies regarding Manufacturing/Industrial Centers emphasize fostering the growth of regionally significant manufacturing, industrial, and advanced technology businesses and reserving land in MICs for these uses. While PSRC policies do not specifically encourage the

development of correctional facilities in MICs, nor do they prohibit them. The PSRC designation criteria for MICs also focus on allowing manufacturing or industrial uses, and while "un-related office" is specifically called out as being discouraged, no mention is made of correctional facilities. In addition, the Multicounty Planning Policies encourage communities to direct a significant share of their employment growth to these regional centers, and the proposed *Westside Prison Reception Center* would create nearly 500 jobs. The addition of another employer in the SKIA MIC would also contribute toward the center's required target employment level of at least 20,000 jobs, as stated in the PSRC designation criteria for MICs.

While not a manufacturing or industrial use, the proposed facility would be functionally and aesthetically more compatible with an industrial setting than in an urban residential or commercial environment. As such, construction of the proposed reception center at the Bremerton SKIA site would be generally consistent with the MIC policies in VISION 2040.

Kitsap Countywide Planning Policies

As described in the Affected Environment section, the Kitsap Countywide Planning Policies form a countywide framework for planning in order to ensure consistency between local, county, and regional plans and policies. The Kitsap Countywide Planning Policies establish a process for reviewing the siting of public facilities of countywide or statewide significance and state that priority shall be given to placing essential public facilities within designated centers. As an essential public facility, placing the proposed *Westside Prison Reception Center* within a regionally designated MIC would be consistent with these countywide planning policies.

The Kitsap Countywide Planning Policies also state that diversification of the local economy is desirable to reduce economic dependence on the US Navy. Encouraging the development of a state government facility, such as the proposed reception center, which would provide a variety of job opportunities for local residents, including correctional officers, administrative staff, and health care professionals, would be consistent with the Countywide Planning Policies and their directive to increase diversity of employment opportunities.

Policy 2.a in Element 3 requires the formation of a Facility Analysis and Site Evaluation Advisory Committee to evaluate the facility against the six listed items. A Planning Directors forum was conducted with the Kitsap Regional Coordinating Council on November 3, 2011 and it was clarified that the process completed to date, including the EIS process, for the siting of the *Westside Prison Reception Center* meets the intent of the Facility Siting and Evaluation committee requirements described in the policy. The KRCC Executive Board will be asked to consider approving a resolution to that affect on November 22, 2011.

Policy 2.b.g in Element 3 indicates that essential public facilities shall not be located in critical areas. The development of the proposed *Westside Prison Reception Center* on the Bremerton Site would result in the direct filling of approximately one acre of wetland area, and thus would impact critical areas and would be inconsistent with this policy. RCW 36.70A.210 states that county-wide planning policies are used solely for providing a framework for establishing local comprehensive plans but are not to be construed to alter the land-use powers of cities. The City's comprehensive plan goals and policies do not preclude locating essential public facilities in critical areas (Section 2.1.4) and BMC Chapter 20.14 allows for unavoidable impacts with mitigation (Section 2.1.5).

City of Bremerton Comprehensive Plan

Land Use Designations

As described in the Affected Environment section, the Official Land Use Map for the City of Bremerton designates the Bremerton Site and surrounding area as Manufacturing/Industrial Center. The establishment of a prison reception center on this site would provide a large-scale employment use with nearly 500 new employees and would be consistent with the designation's purpose to accommodate regional employment opportunities that cannot be easily mixed with other land uses. While correctional facilities are neither specifically prohibited nor specifically allowed within the MIC, the proposed prison reception center has many of the same land use needs as an industrial facility, including large parcel area, access to regional transportation infrastructure, and a need to be separated from residential uses.

City Services Element

The goals and policies of the City Services Element of the Bremerton Comprehensive Plan focus on allowing the development of essential public facilities, while guiding their form and directing their location to ensure compatibility with adjacent land uses and preventing adverse effects to the environment and established neighborhoods. In addition, public facilities are intended to increase employment opportunities for area residents and diversify the local economy. The proposed project would add nearly 500 living-wage jobs to the local economy and would increase the diversity of the local job market and reduce local economic dependence on the US Navy. As such, the proposal would be consistent with goals and policies of the City Services Element.

Land Use Element

The goals and policies of the Land Use Element of the Bremerton Comprehensive Plan focus on establishing distinctive centers within the city and promoting growth while maintaining land use compatibility. In addition, the Land Use Element contains policies for the siting of essential public facilities in a manner that minimizes impacts on residential areas with regard to light, glare, noise, traffic, and reduction in property value.

The Bremerton Site is within a center designated for industrial uses and a reception center at this location would not be adjacent to any established neighborhoods (Policy LU19B). The site also has access to a major regional highway (SR 3) via SW Lake Flora Road, which would avoid traffic impacts to residential areas (Policy LU19B). The reception center building would be a two-story structure, and while 24-hour operation of the facility would be necessary, light and glare produced on the site would be comparable with other nearby industrial uses.

The design of the prison reception center could, however, include construction of an open stormwater detention pond, which is classified by the FAA as a use that has the potential to attract hazardous wildlife. The FAA recommends that such detention facilities, when constructed within the operation area of an airport, should be capable of draining completely within 48 hours after a storm event. If such drainage is not feasible, detention ponds should employ design features that minimize wildlife attraction, such as physical barriers that preclude wildlife access and paving that prevents the growth of vegetation that may provide wildlife habitat. Construction of the proposed reception center's stormwater detention system without

incorporation of such measures could create a conflict with operation of the airport and would be inconsistent with Goal LU16.

The City's policies on the siting of essential public facilities state that EPF's should be located and designed to minimize adverse impacts on existing neighborhoods from traffic, light, glare, odors, noise, and public safety. The Bremerton Site is located in a relatively undeveloped area, surrounded by forest land and industrial uses, limiting the potential for impacts from light, glare, noise, odors, and public safety. One residence is located adjacent to the site. The Bremerton Site is within close proximity to a major regional highway, which provides easy vehicular access and avoids traffic impacts to established residential areas.

Policy LU19B requires that the effect of the chosen location on property values be considered. An increase in almost 500 new living-wage jobs in the area would likely increase demand for housing, retail and other services. The prison reception center on the Bremerton Site would also be located in an area already zoned for industrial uses, minimizing any impacts to property values. As such, the prison reception center would be consistent with the essential public facility siting policy LU19B of the City of Bremerton Land Use Element.

Economic Development Element

The goals and policies of the economic development element emphasize diversification of the local economy, a reduction in reliance on the US Navy, and attraction of new industries and employers to the Bremerton area. Construction of the proposed *Westside Prison Reception Center* would be consistent with these policies by introducing a new public-sector employer to the area who would provide new employment opportunities to the local workforce. The proposed reception center would require nearly 500 employees with a variety of qualifications and expertise, including correctional officers, administrative and maintenance staff, and health care professionals. The proposal would therefore be consistent with the goals and policies of the Economic Development Element.

South Kitsap Industrial Area Subarea Plan

Development of the proposed *Westside Prison Reception Center* on the Bremerton Site would be consistent with the Draft SKIA Subarea Plan, which is currently under consideration by the City, as it would further goals of the plan without introducing a use that would be incompatible with other industrial development or with the nearby Bremerton National Airport. While government correctional facilities are not specifically encouraged by the Draft SKIA Subarea Plan, they are not discouraged, unlike residential and large retail uses. In addition, the prison reception center would be consistent with the economic development policies of the plan by increasing employment opportunities for local workers and diversifying the local economy.

City of Bremerton Municipal Code

As described in the Affected Environment section, the *Westside Prison Reception Center* meets the criteria to be considered a Class II Group Residential Facility, as defined by BMC Chapter 20.42. The reception center would temporarily house convicted offenders, which meets the definition of "persons needing correctional or mental rehabilitation." No drug or alcohol detoxification treatment, which would disqualify the proposal from being defined as a Class II facility, would occur at the prison reception center.

The Bremerton Site for the prison reception center is relatively undeveloped, and land uses in the area consist of forest land, vacant land, and the nearby Bremerton National Airport, as well as several industrial properties to the southwest. Construction of the prison reception center on the Bremerton Site would be unlikely to create operational conflicts with existing industrial uses. The reception center facility would likewise comply with all applicable development standards of the Industrial zone, including dimensional limits and requirements for parking and landscaping. Though final design of the facility is not complete, it is anticipated that the building will not exceed 25 feet in height, which would be consistent with the 50-foot height limit required by the Industrial zone, and would be low enough to avoid interfering with airport operations. The site would also provide adequate space to allow for the parking and landscaping currently required by BMC 20.48 and BMC 20.50, respectively.

The selected location of the facility would unavoidably impact Category III wetland and buffers. BMC 20.14.330.d.2 requires that there be full compensation for impacts through mitigation. As described in the Plants and Animals Technical Report, the impacts cannot be avoided and the required mitigation can be provided to meet federal, state and local regulations.

Overall, the establishment of the *Westside Prison Reception Center* on the Bremerton Site would be consistent with the provisions of the Bremerton Municipal Code.

State and Federal Aviation Regulations

As described in the Affected Environment section, WSDOT and FAA guidance discourages development of incompatible land uses adjacent to airports to promote occupant and aircraft safety. The prison reception center would be located in an area that, if adopted, would be classified as Bremerton National Airport's Safety Zone 6 – Traffic Pattern Zone. While this zone carries the lowest crash risk out of all the established zones, the proposed reception center would be within the operational area of the airport, and the potential for an accident would still exist. Correctional facilities are specifically listed as "Limited" compatible use for Zone 6 in the WSDOT Airports and Compatible Land Use Guidebook, and may be compatible with airport operations depending on its location, size, bulk, height, density and intensity of use. Density and intensity of use is not limited, however in urban areas and the configuration and design of the building would not exceed the size, bulk and height limits. The proposed facility would likely have two communication antennae, likely located in a secure stand-alone location on-site. While not yet designed, it is expected that the antennae would be less than 100 feet in height. If it is determined that because of height and/or location these antennae could pose an airspace obstruction, a Notice of Construction or Alteration would need to be submitted to the FAA for a Part 77 aeronautical review.

As analyzed in Section 3.15, **Utilities,** of this EIS, the proposed design of the reception center includes a stormwater detention pond. Such a facility qualifies as a potential wildlife attraction under FAA guidance. The FAA recommends that such detention facilities, when constructed within the operational area of an airport, should be capable of draining completely within 48 hours after a storm event. If such drainage is not feasible, detention ponds should employ design features that minimize wildlife attraction, such as physical barriers that preclude wildlife access and paving that prevents the growth of vegetation that may provide wildlife habitat. Construction of the proposed reception center's stormwater detention system without incorporation of such measures could create a conflict with operation of the airport and would be inconsistent with FAA guidance. If the Bremerton Site were selected as the site for the prison

reception center, the DOC would coordinate with the Port of Bremerton regarding design issues to ensure compatibility with airport operations.

Mason County Site

Washington State Growth Management Act

Mason County currently plans under the provisions of the Growth Management Act and has adopted policies for siting essential public facilities, as described in the Affected Environment section. Consistency of the proposed project with these policies is described below.

Mason Countywide Planning Policies

As described in the Affected Environment section, Mason County's Countywide Planning Policies support the development of essential public facilities in areas that are adequately served by regional transportation infrastructure and avoid impacts on environmentally sensitive areas. The Mason County Site is located adjacent to a state highway, and, while the site contains a documented wetland, and drainage from the site may feed an offsite wetland complex, the prison reception center would not be located in a way that impacts wetlands or their associated buffers.

The Mason Countywide Planning Policies also encourage economic development that provides opportunities for county residents, especially those who are unemployed or disadvantaged. Encouraging the development of a state government facility, such as the proposed *Westside Prison Reception Center*, which would provide a variety of job opportunities for local residents, including correctional officers, administrative staff, and health care professionals, would be consistent with the Countywide Planning Policies and their directive to increase employment opportunities and provide living wage jobs for County residents.

The Policies also encourage the maintenance and enhancement of natural resource-based industries, such as forestry and agriculture; the Mason County Site has historically been in productive forestry use, and development of the reception center would preclude further use of the site for this purpose. While the proposal would not be entirely consistent with this particular policy, the site is not designated as a long-term commercial forest, and development of the site for uses other than forestry is allowed outright by the currently adopted zoning for the site, as discussed in the Affected Environment section. As such, locating a prison reception center on the Mason County Site would be generally consistent with the Mason Countywide Planning Policies.

Mason County Comprehensive Plan

Land Use Designations

As described in the Affected Environment section, the Mason County Future Land Use map designates the site as Rural Area, which is intended to permit development that preserves the rural character of the area and protect natural features and natural resource uses. The establishment of a prison reception center on the Mason County Site would convert approximately 50 acres of forest land to governmental/institutional use and preclude future use of the property for natural resource extraction. While one of the stated purposes of the Rural Area land use designation is to protect natural resource uses, the site is not designated as long-

term commercial forest land, and the designation also allows small-scale commercial and industrial development. Though correctional facilities are not specifically mentioned, the proposed *Westside Prison Reception Center* would be most comparable to an industrial development in scale and design. As such, a prison reception center would be consistent with the Rural Area land use designation.

Rural Lands Policies

The Rural Areas policies focus on preservation of rural character and the protection and continuation of natural resource-based uses, such as agriculture, forestry, and mining. While the policies allow tourism, horticulture, recreation, and small-scale businesses to locate in rural areas, new industrial facilities or other high-intensity facilities are not encouraged, and new resource-based industrial and commercial uses are only permitted if they would not require urban levels of government service. Non-residential uses are also required to use buffers and screening techniques if located adjacent to residential uses to preserve rural character.

While rural lands policies recognize existing industrial and commercial uses and provide for limited expansion, such expansion is predicated on maintaining existing rural character and not introducing uses that would require urban levels of service. Correctional facilities and development similar to the proposed *Westside Prison Reception Center* are not specifically allowed by the Rural Lands Policies, but nor are they specifically prohibited. To be consistent with the Rural Lands Policies, the establishment of the *Westside Prison Reception Center* on the Mason County Site would be required to implement design elements that screen the prison reception center from the adjacent residences and from SR 102 to maintain the visual integrity of the rural landscape. While construction of the *Westside Prison Reception Center* on the Mason County Site would entail the clearing of approximately 50 acres of forest land, the site is not designated as long-term commercial forest, and the proposal would comply with all required yard setbacks and buffers. It would landscape approximately 9 percent of the site with grass, trees and ornamental shrubs and approximately 24 acres of native vegetation would remain undisturbed, which would help ensure compatibility with the residential and forestry uses on adjacent properties.

Capital Facilities Policies

The Capital Facilities policies focus on ensuring that new development provides adequate treatment for stormwater and wastewater impacts generated by its construction, as well as minimizing overall impacts on adopted level of service standards. The project design includes infiltration and treatment of all stormwater runoff generated on the site. Sewer service is provided by the City of Shelton and located at the site. The satellite sewage treatment plant does not currently have sufficient capacity to treat projected wastewater flows from the *Westside Prison Reception Center*, and upgrades to the plant would be necessary.

The Capital Facilities policies also establish that adopted development regulations should allow for the siting of essential public facilities, including correctional facilities. However, the policies do not specify the process for siting such facilities; merely that it should be a cooperative process between the County and the City of Shelton, as well as neighboring counties when the facility is of regional importance.

Economic Development Policies

The Economic Development policies of the Mason County Comprehensive Plan focus on promoting the growth of existing businesses, attracting new businesses, and economic expansion and diversification, while maintaining environmental quality and protecting natural resource lands and resource-based industries. The policies state that Mason County should support business activities in rural areas and facilitate new development when it is consistent with rural character and state law.

The prison reception center would support the policy directive to strengthen the county's economic base by providing nearly 500 new living-wage jobs that would increase economic opportunity and quality of life for area residents. As such, the *Westside Prison Reception Center* would be consistent with the economic development goals and policies of the Comprehensive Plan.

Mason County Zoning Code

Rural Residential 20 Zone

As described in the Affected Environment section, the site is zoned RR-20, which is intended for rural single family residences on parcels of at least 20 acres. The zone does not specifically allow correctional facilities or industrial uses, but Special Uses, which include essential public facilities, are allowed if they meet the criteria of MMC 17.05.044.

The *Westside Prison Reception* Center would not pose a danger to the public health, safety, and welfare, nor would it introduce hazardous conditions on the site that cannot be mitigated. The design of the prison reception center would include necessary security measures to contain resident offenders, and the location of the facility in a rural area, as opposed to an urban setting, would isolate offenders from the general population. The prison reception center would increase demand for community services, such as water, sewer, and emergency services. It is estimated that upgrades to the nearby Shelton wastewater treatment plant would be necessary to accommodate the increased sewer flows generated by the prison reception center. The prison reception center is anticipated to treat and infiltrate all stormwater runoff onsite. Extension of urban services to the site would therefore be limited to water.

As described in the Affected Environment section, development permitted as a Special Use is allowed to exceed the maximum building footprint of 3,000 sq. ft. established for the RR-20 zone. The RR-20 zone limits Floor Area Ratio (FAR) to no more than 1:20, which would require a 356,000 sq. ft. building to be located on a site of approximately 164 acres. While the currently proposed site is 50 acres, the overall size of the parcel is 497 acres, and additional land is available for purchase beyond the 50 acres currently proposed. The FAR may be adjusted, however, through the flexibility allowed and project information provided in the special use permit process. The property is surrounded by the existing Washington Corrections Center, a power plant, forest land, an auto recycler, and one residence. To mitigate for potential impacts to adjacent rural areas, the *Westside Prison Reception* Center on the Mason County Site would preserve more than 24 acres in native vegetation and landscape another nine acres.

Airport Overlay Zone

As described in the Affected Environment section, the Airport Overlay Zone governs development surrounding Sanderson Field. Special Function Land Uses, which would include the proposal, are not permitted within the overlay zone. However, while the Airport Overlay Zone covers a very small portion the overall 500-acre property at its far eastern edge, the Mason County Site is not located in this area and the *Westside Prison Reception Center* on the Mason County Site would not be regulated under the Airport Overlay Zone guidelines.

Thurston County Site

The *Westside Prison Reception Center* on the Thurston County Site would result in the construction of a 356,000 sq. ft. reception center, housing up to 1,024 offenders, within the Grand Mound subarea of Thurston County. As described in the Affected Environment section, construction activities on the site would be regulated under the Thurston County Comprehensive Plan, Grand Mound Subarea Plan and the Thurston County Zoning Code. Consistency with each of the identified plans, policies and codes is analyzed below.

Washington State Growth Management Act

Thurston County plans under the provisions of the Growth Management Act and has adopted policies for siting essential public facilities, as described in the Affected Environment section. Consistency of the proposed project with these policies is described below.

Thurston Regional Planning Council

As described in the Affected Environment section, TRPC provides information and education regarding the region and its emerging planning issues, but does not regulate land use in Thurston County.

Thurston County County-Wide Planning Policies

The Thurston County County-Wide Planning Policies focus on concentrating development and provision of urban services to urban growth areas. The Thurston County Site is located in an urban area, on an already developed site with existing water and sewer service, and is located on a major transportation corridor. The policies for siting statewide public capital facilities require no probable significant adverse impact on lands designated as critical areas or resource lands. The development of the *Westside Prison Reception Center* on the Thurston County Site could include improvements to existing utilities that are currently located in wetland buffers, which would be mitigated for as required in Thurston County Chapter 17.15 and would not have a probable significant adverse impact.

The proposed Westside Prison Reception Center conforms to the Comprehensive Plan, Grand Mound Subarea Plan and the intent and General Standards of the Zoning code.

As described in the Affected Environment section and the Zoning Code section below, the site does not meet the location requirements of the Use-Specific Standards because of its proximity to schools and residential areas. The hearing examiner may lessen the standards if it is determined that the existing roads and uses provide an effective barrier between the proposed facility and nearby schools and residential zones.

Thurston County Comprehensive Plan

The project is consistent with the policy of encouraging business development in the Grand Mound Urban Growth Area. Impacts to the wetland buffer for improvements to existing utilities would be mitigated and would not be anticipated to have any probable significant adverse impacts to the critical areas or the adjacent Long Term Agricultural lands. The prison reception center on the Thurston County Site would be located on Old Highway 9 SW, a major transportation corridor.

As required by the essential public facility policies, the prison reception center on the Thurston County Site would comply with applicable provisions of the comprehensive plan and other county regulations and would not alter the historic Maple Lane School Administration building. Compliance with the intent of the county Zoning Code would require mitigation as described below under Thurston County Zoning Code.

Grand Mound Subarea Plan

The prison reception center use is consistent with the land use and economic growth envisioned in the Grand Mound Subarea Plan. The Subarea Plan specifically supports provision of urban services to the Maple Lane School site where sewer and water is already available. The Subarea Plan identifies correctional facilities as a compatible use subject to a special use permit.

Thurston County Zoning Code

The Thurston County Zoning Code allows Jails but not Prisons in the PI District. The Thurston County Director of the Resource Stewardship Department has made a determination that the prison reception center use constitutes a Jail, and correctional facilities clearly meet the purpose and intent of the Planned Industrial district. Appeals of this determination would be heard by the hearing examiner, but there is no guarantee that the hearing examiner would concur. No development would occur in the LTA zoned portion of the site (the undeveloped portion of the site) where the use would otherwise not be allowed.

The Zoning Code requires that special uses comply with all of the applicable standards, both general and use-specific. In the PI zone, Jails are required to be located no closer than 500 feet from the boundary of a district in which the use is not allowed as a special use. Residential Zone R3-6/1 does not allow Jails and is located across Old Highway 9 SW less than 500 feet from the site. Likewise portions of the LTA zoned property to the south of the development area does not allow the use and is less than 500 feet but separated by wetlands, Prairie Creek and associated buffers. Thurston County code allows the hearing examiner to lessen these location standards if, in his or her opinion, a water body, freeway or other barrier provides effective separation. The hearing examiner would likely conclude that the wetlands and stream provide a barrier from the LTA zoned property. Old Highway 9 SW is not a freeway and the hearing examiner would need to determine that it is essentially equivalent to a freeway or presents a similar type of barrier.

Jails are also required to be located at least one mile (5,280 feet) from any school. Rochester High School and Rochester Primary School are located approximately 2,400 feet west of the northwest corner of the proposed site and approximately 3,500 feet west from the proposed location of the main reception center building. Grand Mound Elementary School is located

approximately 3,500 feet west from the northwest property corner and 4,600 feet west from the location of the main reception center building. Dairy farms, native vegetation, James Road SW and large lot single family residential uses are located between the proposed site and these schools. Thurston County code allows the hearing examiner to lessen these location standards if, in his or her opinion, a water body, freeway or other barrier provides effective separation. Likewise, the adjacent native vegetation and existing uses may be considered a barrier from the schools, but this would ultimately be up to the hearing examiner to determine.

The design of the proposed reception center would include necessary security measures to contain resident offenders and would isolate offenders from the general population. The location of the facility at an existing juvenile correction facility, which has an established security plan and safety measures in place with assistance from outside law enforcement and emergency responders, may allow for an increased level of public safety. The site is already served by water and sewer, although minor improvements will be required for the new facility. The site is served by a major transportation corridor. With mitigation measures, the prison reception center would not be anticipated to pose a danger to the public health, safety, and welfare, nor would it introduce hazardous conditions on the site.

Grand Mound Development Guidelines

The *Westside Prison Reception Center* would comply with the Grand Mound Development Guidelines.

Summary of the Three Site Alternatives

While correctional facilities are neither specifically prohibited nor specifically allowed within the MIC zone, within which the Bremerton Site is located, the proposed prison reception center has many of the same land use needs as an industrial facility. The prison reception center would be located in an area that would be classified as Bremerton National Airport's Safety Zone 6 – Traffic Pattern Zone. Correctional facilities are specifically listed as "Limited" compatible use for Zone 6 in the WSDOT Airports and Compatible Land Use Guidebook, and may be compatible with airport operations depending on its location, size, bulk, height, density and intensity of use. If the Bremerton Site were selected as the site for the prison reception center, the DOC would coordinate with the Port of Bremerton regarding design issues to ensure compatibility with airport operations. Additionally, locating the prison reception center on the Bremerton Site would be inconsistent with Policy 2.b.g in Element 3 of the Kitsap Countywide Planning Policies which indicates that essential public facilities not be located in critical areas.

The zone within which the Mason County Site is located does not specifically allow correctional facilities or industrial uses, but Special Uses, which include essential public facilities, are allowed if they meet the criteria of MMC 17.05.044. The RR-20 zone, within which the Mason County Site is located, limits Floor Area Ratio (FAR) to no more than 1:20, which would require a 356,000 sq. ft. building to be located on a site of approximately 164 acres. While the currently proposed site is 50 acres, the overall size of the parcel is 497 acres, and additional land is available for purchase beyond the 50 acres currently proposed. The FAR may be adjusted, however, through the flexibility allowed and project information provided in the special use permit process.

The Thurston County Code allows jails but not prisons within the Planned Industrial (PI) zone, within which the Thurston County Site is located. However, the Thurston County Resource

Stewardship Director has made a determination that a prison reception center constitutes a jail. However, appeals of this determination would be heard by the hearing examiner, but there is no guarantee that the hearing examiner would concur. Furthermore, the Thurston County Site does not meet the location requirements of the Use-Specific Standards in the Thurston County Zoning Code. The hearing examiner may lessen the standards if it is determined that the existing roads and uses provide an effective barrier between the proposed facility and nearby schools and residential zones.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives, but the increased demand for additional long-term prison space would remain. Potential impacts pertaining to consistency with adopted plans and policies associated with the No Action Alternative would be as follows:

1. **Site Alternatives** – Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which would address consistency with adopted plans and policies.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would be consistent with adopted plans and policies.

3. **Additional Long-Term Incarceration Capabilities** – Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for space as well as the displaced long-term prison space at the WCC due to increased prison reception center uses. Such construction would presumably be consistent with the comprehensive land use plan and zoning designation applicable for the chosen site. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address consistency with adopted plans and policies.

3.8.3 Mitigation Measures

Bremerton Site

- The project would comply with the Industrial zone's 50-foot height limit, as well as all applicable minimum setbacks, as established in BMC 20.94.

- Parking areas on the site would be designed to comply with currently adopted standards for parking area lighting, screening, landscaping, and signage, as established in BMC 20.48.080.

- Sufficient parking would be provided to comply with the standards established in BMC 20.48.080 (Nonresidential Parking Development Standards) or shall work with the City of Bremerton to obtain a parking requirement reduction, pursuant to BMC 20.48.120.

- To the extent possible, site area could be preserved as natural vegetation and vegetation could be maintained along property lines to provide screening from adjoining properties.

- Project lighting would be designed to direct downward to the greatest extent feasible to reduce light and glare effects on neighboring properties and aircraft using the Bremerton National Airport.

- If the communication antennae pose the potential for an airspace obstruction, a Notice of Construction or Alteration submittal would be required to FAA for a Part 77 aeronautical review would be necessary. Such notice would relate to the construction crane associated with erection of the antennae, the proposed antennae once operational, and the aeronautical chart revisions associated with the antennae.

- To minimize or avoid hazardous wildlife attractants near the airport, underground stormwater detention facilities could be utilized or other design modifications (to open stormwater ponds) could be incorporated. The WSDOT Airport Stormwater Design Manual to implement stormwater best management practices within the airport influence area would be utilized.

- Mitigation for the wetland impacts would meet federal, state and local requirements.

Mason County Site

- Unless waived by the Hearing Examiner, the DOC would acquire the acreage necessary to meet the Floor Area Ratio requirements in MCC 17.04.244.

- The design of the proposed reception center would incorporate all necessary property line setbacks and landscaping to protect the rural character of the surrounding area, as required by MCC 17.04 and subject to conditions imposed pursuant to approval of a Special Use Permit.

- The DOC would, at the time of property acquisition, ensure that a notification is recorded on the subdivision plat stating that the project site is located within 500 feet of land designated by Mason County for long-term commercial forestry and that users of the project site may be subject to temporary nuisances associated with the practice of forestry, pursuant to MCC 17.01.060.E.2.

- The proposed reception center building and any other human-inhabited structures would be located outside the Airport Overlay Zone in order to comply with the prohibition on Special Function Land Uses (MCC 17.60.040).

- No structures or pavement would be constructed within 200 feet of any documented wetlands on the project site.

Thurston County Site

- A 25-foot landscape buffer would be provided/retained adjacent to Old Highway 9 SW as required in Thurston County Code (TCC) 20.54.17.5.diiA. Vehicle sight lines at the access points onto Old Highway would be provided/maintained.

- The main reception center building would be located east of the main access road to increase its distance from nearby schools.

- Existing native vegetation located in the northwest corner of the property would be preserved to maintain a barrier from nearby schools.

- The existing 12-foot tall fence along the perimeter of the property would be maintained. This fence exceeds the code requirement for an 8-foot tall fence.

3.8.4 Significant Unavoidable Adverse Impacts

With the project design features and proposed mitigation described in Section 3.8.3 above, the Bremerton, Mason County, and Thurston County Sites should not have a significant unavoidable adverse impact to applicable plans and policies.

3.9 EMPLOYMENT, POPULATION AND HOUSING

This section characterizes the existing and projected population, employment and housing in the vicinity of the sites and within approximately 10 miles of the sites, and provides an analysis of potential impacts to these categories under the EIS alternatives. Primary sources of information for this section include the 2010 US Census, the Washington Security Employment Department: US Bureau of Labor Statistics and the American Community Survey (ACS).

3.9.1 Affected Environment

Bremerton Site

Employment

There were approximately 82,900 non-farm jobs in Kitsap County in 2010, including 53,900 in the private sector, and 29,000 in government (see **Table 3.9-1**). Government employment is dominated by federal positions with the US Navy. Naval Base Kitsap is located in Bremerton and is the single largest employer in the County with approximately 14,900 civilian Department of Defense (DoD) employees. The top three private employers in the County are Harrison Medical Center (2,697 employees), Walmart (1,003 employees) and Port Madison Enterprises, a subsidiary of the Suquamish Tribe (782 employees).[1] According to the ACS, the median household income in Kitsap County from 2005 to 2009 was estimated at $59,358; the median family and non-family income were estimated at $70,954 and $35,400, respectively.[2]

Table 3.9-1
KITSAP COUNTY, NON-FARM EMPLOYMENT, 2010

Type of Employment	Employees
Total Nonfarm Employment	82,900
Total Private	53,900 (65%)
Total Government • Federal Government • State Government • Local Government	29,000 (35%) • 15,900 • 2,200 • 11,000

Source: Washington Security Department, U.S. Bureau of Labor Statistics.

According to recent employment statistics, Kitsap County has a lower unemployment rate as compared to the state of Washington as a whole, with 7.7 percent unemployment in May 2011, as compared to the state's rate of 9.0 percent. See **Table 3.9-2** for details. The high number of DoD jobs within the County may contribute to the lower unemployment rate, as compared to the state.

[1] Kitsap Economic Development Alliance, 2011.
[2] U.S. Census Bureau, 2005-2009 American Community Survey.

Table 3.9-2
KITSAP COUNTY AND WASHINGTON STATE – RESIDENT LABOR FORCE AND EMPLOYMENT

Location	Labor Force	Persons Employed	Persons Unemployed	Unemployment Rate
Washington State, May 2011	3,475,900	3,164,270	311,630	9.0%
Washington State, June 2010	3,543,010	3,211,710	331,300	9.4%
Kitsap County, May 2011	122,770	113,330	9,440	7.7%
Kitsap County, June 2010	124,150	114,660	9,490	7.6%

Source: Washington State Employment Security Department. Labor Market and Economic Analysis. July 26, 2011.

Population

The Bremerton Site is located in Kitsap County, within the City of Bremerton's South Kitsap Industrial Area (SKIA) (see Section 3.7, **Land Use**, for additional information on this area). The Bremerton Site presently is undeveloped, and contains no residential units, and therefore, has no population.

In addition to the City of Bremerton, within approximately 10-miles driving distance of the site there are several other population centers including the City of Port Orchard (also located in Kitsap County) and Belfair, which is a Census Designated Place located within Mason County.[3]

According to the 2010 US Census, the Kitsap County population was estimated at 251,133. The City of Bremerton is the largest City in the County, with an estimated population of 37,729 in 2010. The County has experienced steady population growth since 2000. Over this 10 year period, Kitsap County's population increased by 8.26 percent from 231,969 to 251,133. This is lower than Washington state's overall population increase of 14.1 percent for this same period.[4]

Between 2000 and 2010, the population of the City of Bremerton increased from 37,259 to 37,729, which is a 1.3 percent increase over the decade.[5] During this ten year period, the City of Bremerton annexed SKIA, although this annexation did not significantly affect population.

The City of Port Orchard estimated population was 11,144 in 2010, which is a 44.86 percent increase from the 2000 population of 7,693. A large annexation in 2009 (McCormick Woods) increased the population of Port Orchard by 1,930 people. Discounting this annexation, the population increase was approximately 19.7 percent over the past decade.

Belfair's estimated population was 3,931 in 2010.[6]

[3] A Census Designated Place is an area identified by the Census Bureau for presenting data for a concentration of population, housing and commercial structures that is identifiable by name, but is not within an incorporated place, such as a City.
[4] U.S. Census Bureau, 2010 Census Redistrict Data (Public Law 94-171) Summary File.
[5] Ibid.
[6] No data is available for Belfair in the year 2000, as this location was recently added as a Census Designated Place.

Housing

According to the 2010 US Census, there were approximately 107,000 total housing units in Kitsap County. In terms of occupied versus vacant housing units, Kitsap County, has a relatively high vacancy rate (9.5%) out of 107,367 total housing units, as demonstrated by **Table 3.9-3**, below.

Table 3.9-3
KITSAP COUNTY HOUSING CHARACTERISTICS, 2010

	Kitsap County
Total Housing Units	107,367
Occupied Housing Units	97,220 (90.5%)
Vacant Housing Units	10,147 (9.5%)

Source: U.S. Census Bureau, 2010 Census Redistricting Data (Public Law 94-171) Summary File.

Within the main population centers near to the site (Bremerton, Port Orchard and Belfair), the vacancy rate is generally similar to the County's in Belfair (9.9%), and is slightly higher in Bremerton (13.5%) and slightly lower in Port Orchard (7.6%). These population centers contain higher rates of owner occupied housing, as compared to renter occupied housing, and the vacancy rates in rental housing were more than double that of homeowner housing, as noted in **Table 3.9-4** below.

Table 3.9-4
HOUSING CHARACTERISTICS, 2010

	City of Bremerton	City of Port Orchard	Belfair
Total Housing Units	17,273	4,630	1,634
Occupied Housing Units	14,932 (86.5%)	4278 (92.4%)	1,437(89.9%)
Vacant Housing Units	2,341 (13.5%)	352 (7.6%)	161 (9.9%)
Vacant Housing Units for Rent	1,109	140	28
Vacant Housing Units Rented, not Occupied	48	10	5
Vacant Housing Units, For Sale Only	279	70	32
Vacant Housing Units, Sold, Not Occupied	36	5	7
Vacant Housing Units, for Occasional Use	101	38	40
Vacant housing Units, All Other Vacants	768	89	49
Homeowner Vacancy Rate	4.2%	2.8%	2.9%
Rental Vacancy Rate	11.4%	6.9%	6.4%
Owner Occupied Housing Units	6,380	2,389	1,069
Renter-Occupied Housing Units	8,552	1,889	404

Source: US Census Bureau, 2010 Census Demographic Profiles Summary File.

Mason County Site

Employment

There were approximately 13,180 non-farm jobs in Mason County in 2010, including 7,910 in the private sector, and 5,280 in government (see **Table 3.9-5**). Government employment is dominated by state and local positions, with federal jobs being in the minority. In 2009, the top three employers in the County were the Little Creek Casino Hotel (720 employees), the Shelton School District (675 employees) and the Washington State Department of Corrections (657 employees).[7] According to the ACS, the median household income in Mason County from 2005 to 2009 was estimated at $49,081; the median family and non-family income were estimated at $56,494 and $29,297, respectively.[8]

Table 3.9-5
MASON COUNTY, NON-FARM EMPLOYMENT, 2010

Type of Employment	Employees
Total Nonfarm Employment	13,180
Total Private	7,910 (60%)
Total Government • Federal Government • State & Local Government	5,280 (40%) • 110 • 5,160

Source: Washington Security Department, U.S. Bureau of Labor Statistics.

According to recent employment statistics, Mason County has a slightly higher unemployment rate as compared to the state of Washington as a whole, with 10.5 percent unemployment in May 2011, as compared to the state's rate of 9.0 percent. See **Table 3.9-6** for details.

Table 3.9-6
MASON COUNTY AND WASHINGTON STATE – RESIDENT LABOR FORCE AND EMPLOYMENT

Location	Labor Force	Persons Employed	Persons Unemployed	Unemployment Rate
Washington State, May 2011	3,475,900	3,164,270	311,630	9.0%
Washington State, June 2010	3,543,010	3,211,710	331,300	9.4%
Mason County, May 2011	24,940	22,310	2,630	10.5%
Mason County, June 2010	25,000	22,340	2,660	10.6%

Source: Washington State Employment Security Department. Labor Market and Economic Analysis. July 26, 2011.

[7] Economic Development Council of Mason County.
[8] U.S. Census Bureau, 2005-2009 American Community Survey.

Population

The Mason County Site is located just west of the City of Shelton, the only incorporated City in the County. According to the 2010 US Census, Mason County's population was estimated at 60,699. The City of Shelton population was estimated at 9,834 in 2010.

The County has experienced strong population growth since 2000. Over this 10 year period, Mason County's population increased by 22.9 percent from 49,405 to 60,699. This is greater than Washington state's overall population increase of 14.1 percent for this same period.[9]

Between 2000 and 2010, the population of the City of Shelton increased from 8,442 to 9,834, which is a 16.49 percent increase over the decade.[10] In comparison, this is about 6 percent less than the County's total population increase from 2000 to 2010.

Housing

According to the 2010 Census, there were approximately 107,367 total housing units in Mason County. In terms of occupied versus vacant housing units, Mason County, has a very high vacancy rate (26.7%) out of 35,218 total housing units, as demonstrated by **Table 3.9-7**, below.

Table 3.9-7
MASON COUNTY HOUSING CHARACTERISTICS, 2010

	Mason County
Total Housing Units	35,218
Occupied Housing Units	23,832 (73.3%)
Vacant Housing Units	8,686 (26.7%)

Source: U.S. Census Bureau, 2010 Census Redistricting Data (Public Law 94-171) Summary File.

Within the City of Shelton, the vacancy rate is much lower than the County's at 7.2 percent. The City contains relative balanced rates of owner occupied housing, as compared to renter occupied housing, with slightly more units being owner occupied overall. See **Table 3.9-8** for details.

[9] U.S. Census Bureau, 2010 Census Redistrict Data (Public Law 94-171) Summary File.
[10] Ibid.

Table 3.9-8
CITY OF SHELTON HOUSING CHARACTERISTICS, 2010

	Shelton
Total Housing Units	3,847
Occupied Housing Units	3,574 (92.8%)
Vacant Housing Units	273 (7.2%)
Vacant Housing Units for Rent	98
Vacant Housing Units Rented, not Occupied	5
Vacant Housing Units, for Sale Only	67
Vacant Housing Units, Sold, not Occupied	8
Vacant Housing Units for Occasional Use	17
Vacant Housing Units, Other	78
Homeowner Vacancy Rate	3.3%
Rental Vacancy Rate	5.7%
Owner Occupied Housing Units	1,955
Renter-Occupied Housing Units	1,619

Source: US Census Bureau, 2010 Census Demographic Profiles Summary File.

Thurston County Site

Employment

According to recent employment statistics, Thurston County has a lower unemployment rate as compared to the state of Washington as a whole, with 8.0 percent unemployment in May 2011, as compared to the state's rate of 9.0 percent. See **Table 3.9-9** for details.

Table 3.9-9
THURSTON COUNTY AND WASHINGTON STATE – RESIDENT LABOR FORCE AND EMPLOYMENT

Location	Labor Force	Persons Employed	Persons Unemployed	Unemployment Rate
Washington State, May 2011	3,475,900	3,164,270	311,630	9.0%
Washington State, June 2010	3,543,010	3,211,710	331,300	9.4%
Thurston County, May 2011	130,100	119,670	10,430	8.0%
Thurston County, June 2010	129,630	119,380	10,250	7.9%

Source: Washington State Employment Security Department. Labor Market and Economic Analysis.

There were approximately 98,100 non-farm jobs in Olympia Metropolitan Statistical Area (MSA) in 2010, including 63,300 in the private sector, and 34,800 in government (see **Table 3.9-10**). Government employment is dominated by state positions, due to the presence of the State Capital. In 2007, the top three employers in Thurston County were: the State Department of Social and Health Services (3,211 employees), Providence St. Peter Hospital (2,400 employees) and the State Department of Labor and Industries (1,939 employees).[11] According to the ACS, the median household income in Thurston County from 2005 to 2009

[11] The Lacey Chamber of Commerce. 15 Largest Employers in Thurston County, 2007.

was estimated at $59,453; the median family and non-family income were estimated at $70,404 and $37,520, respectively.[12]

Table 3.9-10
OLYMPIA MSA, NON-FARM EMPLOYMENT, 2010

Type of Employment	Employees
Total Nonfarm Employment	98,100
Total Private	63,300 (65%)
Total Government • Federal Government • State Government • Local Government	34,800 (35%) • 900 • 22,400 • 11,500

Source: Washington Security Department, U.S. Bureau of Labor Statistics.

Population

The Thurston County Site is located within Grand Mound, which is a Census Designated Place. Other population centers within approximately 10 miles driving distance of the site include Rochester, which is a Census Designated Place, the City of Centralia and Fords Prairie, which is also a Census Designated Place. Fords Prairie, which is located to the south of the site, is within Lewis County.

According to the 2010 Census, the population of Thurston County is estimated at 252,264. The County has experienced strong population growth since 2000. Over this 10 year period, Thurston County's population increased by 21.7 percent from 207,335 to 252,264. This is greater than Washington state's overall population increase of 14.09 percent for this same period.[13]

Between 2000 and 2010, the population of Grand Mound increased from 1,948 to 2,981, which is a 53 percent increase over the decade. The population of Rochester has increased from 1,829 to 2,388 over the decade (30.5 percent).

The City of Centralia is the largest population center in proximity to the site, with an estimated population of 16,336 in 2010. The City has experienced a 10.8 percent population increase since 2000, from a population of 14,742.

Housing

According to the 2010 US Census, there were approximately 108,182 total housing units in Thurston County. In terms of occupied versus vacant housing units, Thurston County has relatively low vacancy rate of 7 percent out of 108,182 total housing units, as shown by **Table 3.9-11**, below.

[12] U.S. Census Bureau, 2005-2009 American Community Survey.
[13] U.S. Census Bureau, 2010 Census Redistrict Data (Public Law 94-171) Summary File.

Table 3.9-11
THURSTON COUNTY HOUSING CHARACTERISTICS, 2010

	Thurston County
Total Housing Units	108,182
Occupied Housing Units	100,650 (93%)
Vacant Housing Units	7,532 (7%)

Source: U.S. Census Bureau, 2010 Census Redistricting Data (Public Law 94-171) Summary File.

As shown in **Table 3.9-12**, within the main population centers near the site (Grand Mound, Rochester and Centralia), the vacancy rate is quite a bit lower than the County's in Rochester (4.5%), and is similar to the County's in Grand Mound (7.5%) and Centralia (8.6%). Rochester and Grand Mound contain much higher rates of owner occupied housing as compared to renter occupied housing, while Centralia has a relatively balanced ratio between the two.

Table 3.9-12
THURSTON COUNTY HOUSING CHARACTERISTICS, 2010

	Grand Mound	Rochester	Centralia
Total Housing Units	1,071	910	7,265
Occupied Housing Units	991 (92.5%)	869 (95.5%)	6,640 (91.4%)
Vacant Housing Units	80 (7.5%)	41 (4.5%)	625 (8.6%)
Vacant Housing Units for Rent	24	14	255
Vacant Housing Units Rented, not Occupied	1	0	15
Vacant Housing Units, for Sale Only	33	14	156
Vacant Housing Units, Sold, not Occupied	2	3	16
Vacant Housing Units for Occasional Use	6	1	26
Vacant Housing Units, Other	14	9	157
Homeowner Vacancy Rate	4.8%	1.9%	4.3%
Rental Vacancy Rate	6.7%	7.8%	7.4%
Owner Occupied Housing Units	869	704	3,471
Renter-Occupied Housing Units	165	165	3,196

Source: US Census Bureau, 2010 Census Demographic Profiles Summary File.

3.9.2 Impacts

Methodology

The DOC estimates that approximately 478 permanent employees will be needed to staff the *Westside Prison Reception Center*. For the purposes of a conservative worst-case impact analysis, it is assumed that all employees of the facility will be new to the community, that is, that they will be in-migrants to the area, rather than existing residents from nearby communities. This assumption is the basis of analysis because although some employees will likely be hired from the host jurisdiction and other nearby communities, the level of local hiring that could occur cannot be accurately predicted.

As part of the transportation analysis for this Draft EIS, estimated employee trip distributions were generated to reflect expected typical travel patterns on an average day and to evaluate potential traffic impacts. Trip distributions were estimated using zip code data of residences for employees at the existing Corrections Center in Mason County. Trip distributions generally identify the percentage of employees expected to travel to/from various geographies and directions surrounding the site. In general, the transportation trip distribution analysis indicates that from 43 to 53 percent of total employee trips are expected to occur within 10 miles of the site and approximately 90 percent of total trips could occur within 50 miles of the site. See Section 3.13, **Transportation**, and **Appendix H** for further details. Therefore, for purposes of this analysis, it is assumed that 43 to 53 percent of employees could be expected to live within approximately 10-miles of any of the site alternatives.

Using the trip distribution percentages, employees were accordingly assigned to various locations surrounding the three sites. Each employee of the prison reception center was then multiplied by the state of Washington average household size of 2.51 in order to account for family members that could be associated with each new employee of the facility.[14] In total, the 478 employees of the new *Westside Prison Reception Center* could result in a total population of approximately 1,200 individuals, 43-53 percent of whom (206-254 employees and 310-383 family members) would be expected to live within roughly 10-miles of the site.

The following analysis focuses on potential population, housing and employment impacts which could occur within 10-miles of the site to designated population centers including cities and Census Designated Places. Where employees are anticipated to reside in unincorporated areas or areas that are not identified as Census Designated Places, it is assumed that impacts would be more dispersed, and the analysis associated with the outlying areas is limited to primarily a qualitative discussion. Employees living more than 10 miles from the site would also be dispersed over a greater area, and population and housing impacts would not be expected to be significant; the analysis of this outlying area is primarily limited to identifying the numbers of employees and household members that could reside within this larger area.

The findings presented in this section should not be used to predict specific locational decisions. Rather, they are intended to suggest the general magnitude and distribution of population impacts, the comparative impacts among the sites, and to provide a basis for

[14] US Census Bureau, 2010 Census Demographic Profiles Summary File.

estimating environmental conditions associated with increases in employment, population and associated housing conditions.

Bremerton Site

Employment

Construction Employment

Site preparation and construction of the proposed *Westside Prison Reception Center* at the Bremerton Site would involve: removal of existing vegetation; grading; construction of new site infrastructure including driveways and utilities; and, construction of new buildings. This work would result in new temporary construction employment opportunities during the approximately 2-year buildout period (estimated July 2013 to October 2015). Based on previous construction of DOC facilities, it is estimated that the project would directly employ up to 175 workers on the site over the approximately 2-year construction period[15] The actual number of construction jobs at any given time would vary depending on the nature and construction phase of the project. Construction jobs would be temporary and would be discontinued once construction of the new prison reception center is completed.

Operational Employment

As noted previously, approximately 478 staff would be needed to operate the proposed *Westside Prison Reception Center*. It is assumed that the positions would primarily be new jobs within the DOC system, rather than transferring employees from the existing prison in Mason County (where the existing reception center is currently co-located).

Staff would fall under three primary categories including custody, non-custody and health services staff. "Custody staff" manage and supervise the offenders and it is estimated that 277 custody staff would be employed at the prison reception center. Approximately 120 "non-custody" staff would be needed for support functions, such as cooking and maintenance. As well, approximately 81 "health services" staff would be needed for medical and mental health support and initial offender evaluations.

Westside Prison Reception Center staff would likely fall under a wide range of wage scales from clerical support and entry level custody officer jobs ($34,000+) to higher paying managerial and medical jobs ($100,000+). However, the majority of the new positions would likely be in the mid-level range (i.e. $40,000 to $60,000).

The new employment opportunities at the *Westside Prison Reception Center* could contribute to lowering the Kitsap County's unemployment rate (7.7% in May 2011), depending on a number of factors. Such factors could include where individuals reside at the time of hire (i.e.

[15] This estimate is based on the highest workforce recorded for construction of the DOC Coyote Ridge Corrections Center Expansion project, from 2006 to 2008. The Coyote Ridge facility was approximately 500,000 sq. ft. and the proposed *Westside Prison Reception Center* would be roughly 350,000 sq. ft., or approximately 70 percent the size of Coyote Ridge. Applying a 70% factor the maximum Coyote Ridge construction employment (250 workers multiplied by 70%), it is estimated that up to approximately 175 construction employees could be needed to build the *Westside Prison Reception Center*.

within the County or outside the County) and whether individuals are unemployed at the time of hire or whether they simply transferred from an existing position to a new position with the Department of Corrections.

Indirect Employment Impacts

During construction of the *Westside Prison Reception Center* it is possible that some nearby businesses (restaurants, retail, services, etc.) could experience an increase in business during ongoing construction phases. Permanent employees of the reception center would be anticipated to contribute to the overall economic activity of the area, including the potential to increase activity at area retail and restaurant businesses. As well, additional residents in various communities surrounding the site could result in increased spending in retail and service categories at local businesses.

Population

Population associated with construction and operation of the *Westside Prison Reception Center* would result from the temporary construction phase and from long-term operation of the facility.

Construction Population (Employment)

Construction of the *Westside Prison Reception Center* is anticipated to occur over an approximately two-year timeframe. During this period, construction employment is anticipated to generate approximately 175 full-time equivalent (FTE) positions at any one time. Depending on the selected contractor and any prevailing union practices, a portion of these positions may be filled by resident workers. However, in-migrant workers would likely be required to supplement the local labor pool.

Because of the short-term nature of construction employment, it is not anticipated that families or other household members would accompany in-migrant construction workers to the area.

Operational Population

As mentioned previously, approximately 478 employees would be required to operate the *Westside Prison Reception Center*. **Table 3.9-13**, below, details the possible employee distribution for the Bremerton Site as based on the transportation trip distribution assumptions. As shown, 53 percent, or 254 total employees would be expected to live within approximately 10-miles driving distance of the site. Considering the assumed family members that could be associated with each new employee (2.51 average household size), assumed total new population in this 10-mile driving distance area would be approximately 636. These employee households would be concentrated at four primary locations including Belfair, Bremerton, Port Orchard, and in the general area west of Highway 16 and east of Glenwood Road SW. Bremerton and Port Orchard are both incorporated cities, and Belfair is a Census Designated Place. The greatest concentration of employees would be expected to reside in the City of Bremerton (21%).

Table 3.9-13
BREMERTON SITE - EMPLOYEE/POPULATION DISTRIBUTION

Location	Located Within 10-Miles of Site	Estimated % Employees	Estimated # Employees	Estimated # Associated Household Members	Total Population*
Belfair	✓	6%	29	43	72
West of HW 16/East of Glenwood Rd. SW	✓	11%	53	79	132
Bremerton	✓	21%	100	152	252
Port Orchard	✓	15%	72	108	180
Allyn, Shelton & areas south		6%	29	43	72
Gig Harbor		4%	19	29	48
Greater Tacoma Area		22%	105	159	264
Silverdale, Tracyton, Sheridan		6%	29	43	72
Bainbridge Island		1%	5	7	12
Kingston		3%	14	22	36
North beyond Hood Canal		2%	10	14	24
Greater Seattle Area		3%	14	22	36
TOTAL		**100%**	**478**	**721**	**1,200**

Source: Heffron Transportation & EA | Blumen.
*****Includes employees and household members

The City of Bremerton's population was estimated at 37,729 in the 2010 Census. Assuming an additional 252 individuals moved to the City as a result of the *Westside Prison Reception Center*, this would result in a nominal population increase of approximately 0.67 percent. Port Orchard's population of 11,144 could gain up to 180 new people, resulting in a population increase of roughly 1.62 percent, and Belfair's population of 3,931 could increase by approximately 1.83 percent with 72 new people. The increased population in these three areas could add to general activity levels (i.e., at area retail and restaurant businesses, increased traffic, etc.) as well as to the population base utilizing basic public services (see Section 3.7, **Land Use**, and Section 3.14, **Public Services**, for additional information).

Housing

Temporary (Construction Phase) Housing Impacts

Construction of the *Westside Prison Reception Center* is assumed to take place over an approximately two-year timeframe, with completion and occupancy assumed to occur in 2016. Construction employment would likely vary over this period, but on average it is estimated that 175 positions would be directly associated with construction of the facility at any one time. Given the amount of vacant rental units in the area (approximately 1,100 units) it is anticipated that the area's temporary housing resources would be adequate.

Long-Term Housing Impacts

As detailed in **Table 3.9-13**, above, 100 permanent employees and their dependents associated with the *Westside Prison Reception Center* could be expected to reside in Bremerton, 72 in Port Orchard, 29 in Belfair, and an additional 53 could be anticipated to live in the general area west of Highway 16 and east of Glenwood Road SW.[16] The City of Bremerton housing stock contains considerable housing vacancies with 2,341 total vacant housing units, according to the 2010 Census. This includes 1,109 vacant units for rent and 279 vacant units for sale (see **Table 3.9-2** for reference). While the new facility would not be expected to be operational until 2016, assuming current vacancy trends are generally maintained, the existing housing stock in Bremerton would be expected to be sufficient to absorb additional housing demand created by the influx of approximately 100 new employees/households associated with operation of the *Westside Prison Reception Center*.

The City of Port Orchard contains fewer vacant units in comparison to Bremerton, with approximately 352 total vacancies including 140 vacant units for rent and 70 vacant units for sale. Overall, the existing housing stock would appear to be sufficient to absorb the potentially 72 new employees/households which could move to the City. Approximately 29 new employees/households could be expected in Belfair, which had 161 vacant units, with 28 for rent and 32 for sale.

Overall, existing available housing within 10-miles of the site (approximately 2,341 units) would be expected to be sufficient to accommodate increased demand for housing that could result from the in-migration of employees to operate the *Westside Prison Reception Center* at the Bremerton Site.

At a distance of greater than 10-miles from the site, the remaining 226 employees are assumed to be widely dispersed over a large area in relatively small concentrations (generally less than 4 percent). The exception would be the greater Tacoma area, where approximately 22 percent, or 105 total employees could be expected to reside. Tacoma is a dense, urban City within a greater metropolitan area in Pierce County and it is anticipated that any housing demand resulting from *Westside Prison Reception Center* employees could be easily met by existing supplies.

Indirect Housing Impacts

Additional housing demand generated in Port Orchard as a result of the *Westside Prison Reception Center* operations could result in a substantial reduction in available housing vacancy, both for the existing population and any in-migrants to the area. In Port Orchard, the addition of 72 new households could potentially result in filling 20 percent of the existing housing vacancies. This could potentially result in upward pricing pressure on existing vacant housing stock, making it more difficult for households/individuals to secure a property for rental or purchase. These impacts would likely be temporary as new housing development would likely be built over time.

[16] For purposes of this analysis, it is assumed that demand for one housing unit would be generated for each employee and associated household members.

Mason County Site

Employment

Construction Employment

Site preparation and construction of the proposed *Westside Prison Reception Center* at the Mason County Site would involve: removal of existing vegetation; grading; construction of new site infrastructure including driveways and utilities; and, construction of new buildings. As was described for the Bremerton Site, this work would result in new temporary construction employment opportunities during the approximately 2-year buildout period (estimated July 2013 to October 2015). The number of temporary construction jobs that could be generated at the Mason County Site would be up to 175 total construction jobs. The actual number of construction jobs at any given time would vary depending on the nature and construction phase of the project. Construction jobs would be temporary and would be discontinued once construction of the new prison reception center is completed.

Operational Employment

As noted previously, approximately 478 staff would be needed to operate the proposed *Westside Prison Reception Center*. It is assumed that the positions would primarily be new jobs within the DOC system, rather than transferring employees from the existing prison in Mason County (where the existing reception center is currently co-located).

Staff would fall under three primary categories including custody, non-custody and health services staff. "Custody staff" manage and supervise the offenders and it is estimated that 109 custody staff would be employed at the prison reception center. Approximately 103 "non-custody" staff would be needed for support functions, such as cooking and maintenance. As well, approximately 76 "health services" staff would be needed for medical and mental health support and initial offender evaluations.

Westside Prison Reception Center staff would likely fall under a wide range of wage scales from clerical support and entry level custody officer jobs ($34,000+) to higher paying managerial and medical jobs ($100,000+). However, the majority of the new positions would likely be in the mid-level range (i.e. $40,000 to $60,000).

The new employment opportunities at the *Westside Prison Reception Center* could contribute to lowering the Mason County's unemployment rate (10.5% in May 2011), depending on a number of factors. Such factors could include where individuals reside at the time of hire (i.e. within the County or outside the County) and whether individuals are unemployed at the time of hire or whether they simply transferred from an existing position to a new position with the Department of Corrections.

Indirect Employment Impacts

During construction of the *Westside Prison Reception Center* it is possible that some nearby businesses (restaurants, retail, services, etc.) could experience an increase in business during ongoing construction phases. Permanent employees of the reception center would be

anticipated to contribute to the overall economic activity of the area, including the potential to increase activity at area retail and restaurant businesses. As well, additional residents in various communities surrounding the site could result in increased spending in retail and service categories at local businesses.

Population

As mentioned previously, population associated with construction and operation of the *Westside Prison Reception Center* would result from the temporary construction phase and from long-term operation of the facility.

Construction Population (Employment)

Construction employment impacts at the Mason County Site would be generally as described for the Bremerton Site. That is, construction is anticipated to occur over an approximately two-year timeframe. During this period, construction employment is anticipated to generate up to 175 positions at any one time. In-migrant workers would likely be required to supplement the local labor pool. Because of the short-term nature of construction employment, it is not anticipated that families or other household members would accompany in-migrant construction workers to the area.

Operational Population

Approximately 478 permanent employees would be required to operate the *Westside Prison Reception Center*. **Table 3.9-14** details the possible employee distribution for the Mason County Site as based on the transportation trip distribution assumptions. As shown, 43 percent, or 206 total employees would be expected to live within approximately 10-miles driving distance of the site. Considering the assumed family members that could be associated with each new employee (2.51 average household size), assumed total new population in this 10-mile driving distance area would be approximately 516. These employee households would be most concentrated within the City of Shelton (24%, 115 employees). Remaining employees within 10-miles of the site would likely be distributed throughout Mason County in smaller increments of 2 to 5 percent (10 to 24 employees).

The City of Shelton's population was estimated at 9,834 in the 2010 Census. Assuming an additional 288 individuals (115 employees/households) moved to the City as a result of the *Westside Prison Reception Center*, this would result in a population increase of approximately 2.1 percent as compared to existing conditions. The additional population could slightly increase general activity levels in Shelton, as well as add to the population base utilizing basic public services (see Section 3.7, **Land Use**, and Section 3.14, **Public Services**, for additional information).

Housing

Temporary (Construction Phase) Housing Impacts

As described for the Bremerton Site, construction of the *Westside Prison Reception Center* is assumed to take place over an approximately two-year timeframe, with completion and occupancy in 2016. On average, it is estimated that up to 175 positions would be directly associated with construction of the facility at any one time. Given the amount of vacant rental

Table 3.9-14
MASON COUNTY SITE - EMPLOYEE/POPULATION DISTRIBUTION

Location	Located Within 10-Miles of Site	Estimated % Employees	Estimated # Employees	Estimated Associated Household Members	Total Population*
Shelton	✓	24	115	173	288
West of Shelton	✓	2	10	14	24
West Mason County – West of W Dayton Airport Road	✓	3	14	22	36
Greater West Mason County Area		4	19	29	48
North of Shelton	✓	5	24	36	60
Northern Mason County	✓	3	14	22	36
Greater Hoodsport Area		4	19	29	48
Northeast of Shelton		1	5	7	12
Greater Belfair, Bremerton Area		7	33	51	84
South of Shelton	✓	2	10	14	24
Southwest of Shelton	✓	4	19	29	48
Southeast of Shelton – North of 108		2	10	14	24
Greater McCleary, Elma Area		2	10	14	24
South Mason County – North of HW 8		3	14	22	36
South Mason County – South of HW 8		3	14	22	36
Northwest of Olympia		1	5	7	12
Olympia		4	19	29	48
Lacey		12	57	87	144
Tumwater		3	14	22	36
South beyond Tumwater		4	19	29	48
Dupont, Lakewood, & Greater Tacoma Area		7	33	51	84
TOTAL		**100%**	**478**	**722**	**1,200**

Source: Heffron Transportation & EA | Blumen.

*****Includes employees and household members

units in the area (approximately 98) it is anticipated that the area's temporary housing resources may not be adequate and that some construction workers would need to seek temporary housing at a greater distance from the site (i.e. more than 10 miles driving distance). Because this situation would be temporary, no significant impacts would be anticipated.

Long-Term Housing Impacts

As detailed in **Table 3.9-14**, above, approximately 115 permanent employees could be expected to reside in Shelton, and an additional 91 could be anticipated to live in

unincorporated areas within Mason County, primarily to the north, south and west of the site. The City of Shelton housing stock contains 273 total vacant housing units according to the 2010 Census. This includes 98 vacant units for rent and 67 vacant units for sale (see **Table 3.9-5** for reference). While the new facility would not be expected to be operational until 2016, assuming current vacancy trends are generally maintained, the existing housing stock in Shelton could absorb the additional housing demand created by the influx of approximately 115 new employees/households associated with operation of the *Westside Prison Reception Center*. It is possible, however, that some new housing demand could be created over the long-term, depending on the specific characteristics of available vacant housing (i.e. number of bedrooms, size of property, etc.) and individual preferences.

The remaining 91 employees within 10-miles of the site would likely be widely distributed throughout the County. Overall, existing housing within 10-miles of the site would be expected to be sufficient to accommodate increased demand for housing that could result from the in-migration of employees to operate the *Westside Prison Reception Center* at the Mason County Site.

At a distance of greater than 10 miles from the site, the remaining 272 employees would be widely dispersed over a relatively large area, with approximately 16 percent of the employees anticipated to reside in the Olympia/Lacey area. It is anticipated that additional housing demand resulting from *Westside Prison Reception Center* employees could be met by existing supplies, particularly in Olympia and Lacey, which are large, urban centers.

Indirect Housing Impacts

Additional housing demand generated in the City of Shelton as a result of the *Westside Prison Reception Center* operations could result in a substantial reduction in available housing vacancy, both for the existing population and in-migrants to the area. The addition of 115 new households could potentially result in filling approximately 42 percent of the existing housing vacancies. This could potentially result in upward pricing pressure on existing vacant housing stock, making it more difficult for households/individuals to secure a property for rental or purchase. These impacts would likely be temporary as new housing development would likely be built over time.

Thurston County Site

Employment

Construction Employment

Site preparation and construction of the proposed *Westside Prison Reception Center* at the Thurston County Site would involve: demolition of certain existing buildings; remodeling of certain existing buildings; removal of some existing vegetation; grading; construction of some new site infrastructure including driveways and utilities; and, construction of a new building. As was described for the Bremerton Site, this work would result in new temporary construction employment opportunities during the approximately 2-year buildout period (estimated July 2013 to October 2015). The number of temporary construction jobs that could be generated at the Thurston County Site would be generally as described for the Bremerton Site (up to 175 total construction jobs). The actual number of construction jobs at any given time would vary depending on the nature and construction phase of the project. Construction jobs would be temporary and would be discontinued once construction of the new prison reception center is completed.

Operational Employment

As noted previously, approximately 478 staff would be needed to operate the proposed *Westside Prison Reception Center*. It is assumed that the positions would primarily be new jobs within the DOC system, rather than transferring employees from the existing prison in Mason County (where the existing reception center is currently co-located).

Staff would fall under three primary categories including custody, non-custody and health services staff. "Custody staff" manage and supervise the offenders and it is estimated that 109 custody staff would be employed at the prison reception center. Approximately 103 "non-custody" staff would be needed for support functions, such as cooking and maintenance. As well, approximately 76 "health services" staff would be needed for medical and mental health support and initial offender evaluations.

Westside Prison Reception Center staff would likely fall under a wide range of wage scales from clerical support and entry level custody officer jobs ($34,000+) to higher paying managerial and medical jobs ($100,000+). However, the majority of the new positions would likely be in the mid-level range (i.e. $40,000 to $60,000).

The new employment opportunities at the *Westside Prison Reception Center* could contribute to lowering the Thurston County's unemployment rate (8% in May 2011), depending on a number of factors. Such could include where individuals reside at the time of hire (i.e. within the County or outside the County) and whether individuals are unemployed at the time of hire or whether they simply transferred from an existing position to a new position with the DOC.

Indirect Employment Impacts

During construction of the *Westside Prison Reception Center* it is possible that some nearby businesses (restaurants, retail, services, etc.) could experience an increase in business during

ongoing construction phases. Permanent employees of the reception center would be anticipated to contribute to the overall economic activity of the area, including the potential to increase activity at area retail and restaurant businesses. As well, additional residents in various communities surrounding the site could result in increased spending in retail and service categories at local businesses.

Population

As mentioned previously, population associated with construction and operation of the *Westside Prison Reception Center* would result from the temporary construction phase and from long-term operation of the facility.

Construction Population (Employment)

Construction employment impacts at the Thurston County Site would be generally as described for the Bremerton Site. That is, construction is anticipated to occur over an approximately two-year timeframe. During this period, construction employment is anticipated to generate up to 175 positions at any one time. In-migrant workers would likely be required to supplement the local labor pool. Because of the short-term nature of construction employment, it is not anticipated that families or other household members would accompany in-migrant construction workers to the area.

Operational Population

Table 3.9-15, below, details the possible employee distribution for the Thurston County Site as based on the transportation trip distribution assumptions. As shown, approximately 43 percent, or 206 total employees would be expected to live within 10-miles driving distance of the site. Considering the assumed family members that could be associated with each new employee (2.51 average household size), assumed total new population in this 10-mile driving distance area would be approximately 516. These employee households would be concentrated within the City of Centralia (30 percent, 143 employees), and Grand Mound and Rochester (13 percent total, 62 employees).

Table 3.9-15
EMPLOYEE/POPULATION DISTRIBUTION – THURSTON COUNTY SITE

Location	Located Within 10-Miles of Site	Estimated % Employees	Estimated # Employees	Estimated Associated Household Members	Total Population*
Rochester	✓	10%	48	72	120
Grand Mound	✓	3%	14	22	36
Centralia	✓	30%	143	217	360
Chehalis		3%	14	22	36
South, beyond Chehalis		5%	24	36	60
Greater Oakville & Elma Area		2%	10	14	24
Tenino		1%	5	7	12
North of Tenino – East of I-5		4%	19	29	48
North of Rochester – West of 1-5		5%	24	36	60
Lacey		10%	48	72	120
Olympia		3%	14	22	36
Yelm		3%	14	22	36
Roy		2%	10	14	24
Dupont		2%	10	14	24
Lakewood, Spanway & GreaterTacoma Area		10%	48	72	120
Between Hwy 8 & 101		4%	19	29	48
Greater Shelton Area		3%	14	22	36
TOTAL		**100%**	**478**	**722**	**1200**

Source: Heffron Transportation & EA | Blumen.
*****Includes employees and household members

The City of Centralia's population was estimated at 16,336 in the 2010 Census. Assuming an additional 360 individuals moved to the City as a result of the *Westside Prison Reception Center*, this would result in a population increase of approximately 2.2 percent. Rochester's population of 2,388 could gain up to 120 new people, resulting in a population increase of roughly 5 percent, and Grand Mound's population of 2,981 could increase by approximately 1.2 percent with 36 new people. The additional population in these areas could increase general activity levels, as well as add to the population base utilizing basic public services (see Section 3.7, **Land Use**, and Section 3.14, **Public Services**, for additional information).

Housing

Temporary (Construction Phase) Housing Impacts

As described for the Bremerton Site, construction of the *Westside Prison Reception Center* is assumed to take place over an approximately two-year timeframe, with completion and occupancy in 2016. On average, it is estimated that up to 175 positions would be directly

associated with construction of the facility at any one time. Given the amount of vacant rental units in the area (approximately 293 units in Rochester, Grand Mound and Centralia) it is anticipated that the area's temporary housing resources would be adequate.

Long-Term Housing Impacts

As detailed in **Table 3.9-15**, above, 143 permanent employees and their dependents associated with the *Westside Prison Reception Center* could be expected to reside in Centralia, 48 in Rochester, and 14 in could be anticipated to live in Grand Mound.[17] The City of Centralia housing stock contains 625 vacant housing units, including 255 for rent and 156 for sale. While the new facility would not be expected to be operational until 2016, assuming current vacancy trends are generally maintained, the existing housing stock in Centralia would be expected to be sufficient to absorb additional housing demand created by the influx of approximately 143 new employees/households associated with operation of the *Westside Prison Reception Center*.

Rochester contains fewer vacant units in comparison to Centralia, with approximately 41 total housing vacancies including 14 vacant units for rent and 14 vacant units for sale. Overall, the existing housing stock does not appear to be sufficient to absorb the potentially 48 new employees/households which could move to the area. Additional housing would need to be built, or employees would need to reside elsewhere in order to secure existing housing.

Approximately 14 new employees/households could be expected to live in Grand Mound, which has 80 vacant units according to the 2010 Census, with 24 for rent and 33 for sale. The existing housing stock in this community would likely be sufficient to absorb the new housing demand created by the influx of approximately 14 new employees/households associated with operation of the reception center.

Overall, existing available housing within 10-miles of the site (approximately 746 units) would be expected to be sufficient to accommodate increased demand for housing that could result from the in-migration of employees to operate the *Westside Prison Reception Center* at the Thurston County Site, with the exception being Rochester. However, a greater number of vacancies are available in Grand Mound and Centralia, and employees could likely find housing vacancies in these areas if so needed.

At a distance of greater than 10-miles from the site, the remaining 273 employees are assumed to be widely dispersed over a large area in relatively small concentrations (generally 5 percent or less). The exception would be the Lacey area, where approximately 10 percent, or 48 total employees could be expected to reside. It is anticipated that housing demand resulting from *Westside Prison Reception Center* employees could be met by existing supplies within Lacey.

Indirect Housing Impacts

Additional housing demand generated in Centralia, Rochester and Grand Mound as a result of the *Westside Prison Reception Center* operations could result in a substantial reduction in available housing, both for the existing population and in-migrants to the area. In Centralia,

[17] For purposes of this analysis, it is assumed that demand for one housing unit would be generated for each employee and associated household members.

the addition of 143 new households could potentially result in filling approximately 22 percent of the existing housing vacancies; 14 new households in Grand Mound could fill 17.5 percent of existing housing vacancies; and in Rochester 100 percent of existing housing vacancies could be filled with 48 new households. This could potentially result in upward pricing pressure on existing vacant housing stock, making it more difficult for households/individuals to secure a property for rental or purchase. These impacts would likely be temporary as new housing development would likely be built over time.

Summary of the Three Site Alternatives

The general employment and population that could result from construction and operation of the *Westside Prison Reception Center* would be the same at any of the three site alternatives. Available housing within proximity to the site (i.e. approximately 10 miles driving distance) is the variant which differs according to the site. Lesser supplies of vacant housing in proximity to the new facility could result in employees having to live further from their place of employment, and could result in impacts to available housing stock both for existing residents of a community and in-migrants to the area.

Comparatively, the Bremerton Site has the greatest supply of available housing of the three site alternatives with 2,341 vacant units. This is assumed to be more than adequate to absorb housing demand generated by both temporary construction activities and permanent operations of the *Westside Prison Reception Center*. Although available housing in proximity to the Thurston County Site is not as extensive as the Bremerton Site (746 units), there still appears to be adequate housing stock to absorb demand generated by the proposed new facility, with the greatest housing availability in the City of Centralia. The Mason County Site has the least available housing in proximity to the site, with 273 vacant units in the City of Shelton, where approximately 115 permanent employees are anticipated to reside. Although this would appear to be adequate to meet the projected needs of permanent employees, it is possible that some new housing demand could be created over the long-term, depending on the specific characteristics of available vacant housing (i.e. number of bedrooms, size of property, etc.) and individual preferences. Also, existing housing in Shelton may not be sufficient to accommodate the influx of temporary construction workers; it is likely that these temporary employees would need to reside elsewhere, at a greater distance from the site.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives, but the increased demand for additional long-term prison space would remain. Potential employment, population and housing impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** – Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which could address potential employment, population or housing impacts from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in employment, population or housing impacts.

3. **Additional Long-Term Incarceration Capabilities** – Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for space as well as the displaced long-term prison space at the WCC due to increased prison reception center uses. Depending on the location and type of development, the additional long-term incarceration facilities could result in aesthetic-related impacts. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential light and glare impacts.

3.9.3 Mitigation Measures

No significant impacts have been identified and no mitigation measures are proposed.

3.9.4 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts would be anticipated.

3.10 AESTHETICS and LIGHT AND GLARE

This section of the DEIS is divided into two parts. Section 3.10.1 describes the existing aesthetic and visual character associated with the three alternative sites and the site vicinity, and evaluates how development associated with the proposal would affect these characteristics. Section 3.10.2 describes existing light and glare conditions on the three alternative sites, and evaluates how development associated with the proposal would affect these conditions.

3.10.1 AESTHETICS

3.10.1.1 Affected Environment

For purposes of this DEIS, the visual character of a site relates to the type, density and design of development on and proximate to a site and other features of the landscape, including the extent of any vegetation and open space in the site area. An emphasis is placed on potential impacts to views of the sites, including from major roadway(s) adjacent to the sites. The height, bulk and scale of the structures on the site and in the site vicinity are also described. Discussion of the existing visual character and visual resources of the three alternative sites follows.

Bremerton Site

This Bremerton Site is located within the City of Bremerton, southeast of SR 3 and northeast of SW Lake Flora Road. The visual character of the Bremerton Site is that of an undeveloped and vegetated rural area with mature trees and understory. Several unimproved trails (former logging roads) cross the site. See **Figures 3.10-1** to **3.10-3**, later in this section, for the location and photographs illustrating the existing visual character of the Bremerton Site.

The visual character of the area surrounding the Bremerton Site is varied and reflective of a rural area with dispersed development. The area northwest and southwest of the site contains undeveloped, forested land and rural residential buildings. Undeveloped area is present to the south, logging/forestry uses are present to the east, and undeveloped area and the Bremerton National Airport located to the north. Surrounding adjacent land uses include rural residential single family homes to the northwest (north of SR 3), rural residential single family homes to the southwest (south of SW Lake Flora Road), undeveloped area to the south, logging/forestry uses to the east, and undeveloped area to the north. See Section 3.7, **Land Use**, for additional information on existing land uses.

Existing buildings in the vicinity of the Bremerton Site are primarily low-rise, one to three story structures. Larger-scale buildings in the area include the industrial/warehouse buildings associated with the auto yard southwest of the site and the structures associated with the Bremerton National Airport to the north.

The site is relatively isolated from public view due to its location and dense perimeter vegetation. Viewer groups would primarily include motorists on SW Lake Flora Road and potentially the residents directly to the west of the site, on the west side of SW Lake Flora Road.

Mason County Site

The Mason County Site is located south of SR 102 and northeast of the existing Washington State Correctional Center (WCC). The visual character of the Mason County Site is that of an undeveloped, vegetated rural area with trees and understory. The site has been previously logged for timber. Several unpaved former logging trails cross the site. The visual character of the area surrounding the Mason County Site is reflective of a rural area with dispersed development and low-rise buildings. The area to the north, south and west is undeveloped, and an auto junk yard with a single-family residence is located to the east (east of Austins Court Road). A Mason County P.U.D. Peaking Station is located further to the west, while further to the southwest is the existing Washington Corrections Center (WCC). See Section 3.7, **Land Use**, for additional information on existing land uses. See **Figures 3.10-4** to **3.10-6**, later in this section, for the location and photographs illustrating the existing visual character of the Mason County Site.

Buildings in the vicinity of the Mason County Site are primarily low-rise, one to three-story structures. Larger-scale buildings in the area include the existing WCC located southwest of the site and structures associated with Sanderson Airport located southeast of the site.

The primary viewer group for the Mason County Site would include motorists along SR 102, and potentially the residents of the single family home directly to the east.

Thurston County Site

The Thurston County Site is located at 20311 Old Highway 9 SW in Grand Mound, and is the site of the former Maple Lane Juvenile Detention Facility. The visual character of the 55-acre northern portion of the 209-acre Thurston County Site is that of an open campus with multiple buildings. The site is developed with 32 buildings and structures that were associated with the former Maple Lane Juvenile Detention Facility. Buildings include one and two-story administrative, offices, dormitories, utilities/boilers, recreational, classrooms and medical facilities. Pedestrian pathways and access roads connect many of the buildings. A 12-foot tall chain-link fence topped with barbed wire surrounds the site perimeter, and a 200 stall surface parking lot is located in the central portion of the site, outside the perimeter fencing. A large grove of trees is also located in the northwestern portion of the site. Mature maple trees line the main entrance driveway to the site, and are present within the fenced area as well. Mature trees and vegetation also exist along portions of the perimeter of the site, on the opposite side of the fencing.

The visual character of the area surrounding the Thurston County Site is varied and reflective of a rural residential area with scatted agricultural and community uses. Mature trees exist along the site perimeter. Adjacent land uses include a dairy farm located to the northwest; rural residential, agricultural and religious uses and a water/sewer treatment plant to the northwest (north of Old Highway 9 SW); rural residential uses to the east (east of Old Highway 9 SW); a public golf driving range to the immediate southeast (adjacent to the site); and undeveloped land to the south (within the 209-acre site property). See Section 3.7, **Land Use**, for additional information on existing land uses.

Buildings in the vicinity of the Thurston County Site are primarily low-rise, one to three-story

structures. Larger-scale buildings in the vicinity include some of the on-site facilities, and buildings associated with the dairy farm to the west and high school to the west.

The primary viewer groups for the Thurston County Site would be motorists along Old Hwy 9 SW.

3.10.1.2 Impacts

Methodology

As described in **Chapter 2**, three possible site alternatives are evaluated in this DEIS. Each of the three sites has a distinct visual character that could potentially be affected by a DOC *Westside Prison Reception Center*, if developed at that site. This analysis describes how the proposed *Westside Prison Reception Center* could affect the existing visual character associated with each site (see Section 3.7, **Land Use**, for more information about land use compatibility).

For this visual analysis, viewpoints were selected based on public locations where the site may potentially be seen by people from public locations. Based on these viewpoints, visual simulations of potential site development at each of the three alternatives sites were prepared; these simulations 1) assume a level of development consistent with information presented in **Chapter 2** of this DEIS, and in *Aesthetic Character of the Proposed Westside Prison Reception Center* section below; and, 2) consider environmental site constraints, such as sensitive areas. The specific design of a *Westside Prison Reception Center* at each site alternative has not been determined at this stage in the evaluation process; therefore, the exact visual appearance of the facility is unavailable. For purposes of this viewshed analysis, however, preliminary building massing concepts are portrayed in the simulations (see description below). These simulations are expected to be representative of the building massing and form that may occur at each site and are considered suitable for purposes of this DEIS.

Where the prison reception center would not be visible from a viewpoint due to existing vegetation and/or topography, the proposed building massing is outlined in yellow to represent the actual location behind the vegetation/topography.

Aesthetic Character of the Proposed Westside Prison Reception Center

For all the site alternatives the proposed new prison reception center would be housed in a single, contiguous building that would generally contain cell housing on one side and support areas on the other. Housing areas would generally be two stories in height (approx. 25 feet) and support areas would be one-story in height. Both building components would be interconnected. Key elements of the proposed project include the following:

- The proposed *Westside Prison Reception Center* would contain approximately 356,000 sq. ft., with 1,024 beds, reception centers services, accommodate a staff of 478, and, would provide parking for approximately 400 vehicles for staff and visitors.

- The building would contain secure exterior walls constructed of concrete panels. Windows would be limited in size and numbers to the segregation housing and health services area.

- Non-secure exterior walls may be concrete or steel framing with windows sized for typical office functions.

The grounds surrounding the prison reception center building would consist of surface parking, access roads, landscaping and open areas up to 300 ft from the building exterior. Proposed landscaping would include natural lawn areas 100 yards around the building and trees and shrubs in and around the parking areas. Fencing would be located at the site perimeter property lines and around the warehouse truck yard and bus receiving yard; for the Thurston County Site, portions of the existing fencing provided for the Maple Lane Juvenile Detention facility would be used.

Bremerton Site

Aesthetic Character

Development of the *Westside Prison Reception Center* at the Bremerton Site would change the aesthetic character of the site from undeveloped, forested land, to a primarily developed area containing two buildings (the prison reception center and a bus barn), perimeter fencing, surface parking and open space/landscaping.

The proposed reception center at this site would be located in the northwest portion of the site and would be oriented in an east/west direction – generally parallel with the north property line. Public and staff parking would be located to the south of the building. The main building would be setback approximately 600 feet from Lake Flora Road.

A stand-alone, one-story bus barn building for maintaining buses, trucks, autos and maintenance equipment needed for the prison operations and offender transportation would be located to the south/southeast of the main prison building. Fencing and gates would surround the bus and service delivery yards. Refer to **Figures 2-7** and **2-8** in **Chapter 2** for a site plan and birds-eye view of the proposed facility.

The height of the new building at the Bremerton Site (1-2 stories) would be consistent with other nearby development, which consists primarily of one to three story buildings, and the scale would be similar to other large facilities such as the airport and light industrial facilities to the north.

Potential Views to the Site

See **Figure 3.10-1** for a map showing the two viewpoint locations for the Bremerton County site. The following is a discussion of the existing and developed view from each viewpoint.

Source: EA|Blumen, Google, 2011

EA | BLUMEN

Figure 3.10-1

Bremerton Site - Viewpoint Location Map

Viewpoint 1

From Viewpoint 1 – SW Lake Flora Road Looking East (**Figure 3.10-2**), the current view includes the SW Lake Flora Road roadway in the foreground, with mature trees and vegetation in the mid-field view.

The developed view of the site from this viewpoint would remain as described under existing conditions. The proposed *Westside Prison Reception Center* would not be visible due to the presence of trees and vegetation, and the distance of the building from the roadway. The yellow hatched area included in **Figure 3.10-2** represents the location of the prison reception center building behind retained vegetation.

Viewpoint 2

From Viewpoint 2 – SW Lake Flora Road Looking Northwest (**Figure 3.10-3**), the current view includes the SW Lake Flora Road roadway in the foreground, with mature trees and vegetation in the mid-field view.

The developed view of the site from this viewpoint would remain as described under existing conditions. The proposed *Westside Prison Reception Center* would not be visible due to the presence of trees and vegetation, and the distance of the building from the roadway. The yellow hatched area included in **Figure 3.10-3** represents the location of the prison reception center building behind retained vegetation.

Mason County Site

Aesthetic Character

Development of the *Westside Prison Reception Center* at the Mason County Site would change the aesthetic character of the site from undeveloped, forested land to a developed area containing one modulated building, security fencing surrounding the site perimeter, surface parking and landscaped open space.

The proposed reception center at this site would be located in the central portion of the site and would be oriented in a north/south direction – generally parallel with the east property line. Public and staff parking would be located to the west of the building. As indicated previously, the secure portion of the building would be two stories in height and supporting structures outside of the main building would be one-story in height. The main building would be setback approximately 500 feet from Dayton Airport Road. Refer to **Figures 2-9** and **2-10** in **Chapter 2** for a site plan and birds-eye view of the proposed facility.

Bus barn functions for the Mason County Site would be accommodated by existing facilities located at the nearby Washington Correctional Center (WCC).

The height of the new building at the Mason County Site (1-2 stories) would be consistent with other nearby development and the scale would be similar to other large facilities such as the existing WCC to the southwest, and the Washington State Patrol Academy to the east.

Existing

Proposed

Yellow hatching indicates where the proposed building would be obscured by vegetation

Source: Integrus Architecture, 2011

EA | BLUMEN

Figure 3.10-2
Bremerton Site - Viewpoint 1

Existing

Proposed

Yellow hatching indicates where the proposed building would be obscured by vegetation

Source: Integrus Architecture, 2011

EA | BLUMEN

Figure 3.10-3
Bremerton Site - Viewpoint 2

Potential Views to the Site

See **Figure 3.10-4** for a map with the two viewpoint locations for the Mason County Site. The W Dayton Airport (SR 102) roadway is the primary location where viewer groups could see the redeveloped site. The following is a discussion of the existing and developed view from each viewpoint

Viewpoint 1

From Viewpoint 1 – W Dayton Airport Looking Southwest (**Figure 3.10-5**), the current view includes the Dayton-Airport roadway in the foreground, with trees and vegetation in the mid-field view. Austins Court Road can be seen bordering the site perimeter to the south (left). A slight topographic rise (swale) is visible to the south, bordering Austins Court Road. The developed view of the site from this viewpoint would remain as described under existing conditions. The proposed *Westside Prison Reception Center* would not be visible due to the presence of retained topography, trees and vegetation, and the distance of the building from the roadway. The yellow hatched area included in **Figure 3.10-5** represents the location of the prison reception center building behind retained topography and vegetation.

Viewpoint 2

From Viewpoint 2 – W Dayton Airport Looking Southeast (**Figure 3.10-6**), the current view includes the W Dayton Airport roadway in the foreground, and trees and vegetation in the midfield view. An unpaved roadway/trail is visible to the east (left).

The developed view of the site from this viewpoint would remain as described under existing conditions. The proposed *Westside Prison Reception Center* would not be visible due to the presence of retained trees and vegetation and the distance of the building from the roadway. The yellow hatched area included in **Figure 3.10-6** represents the location of the prison reception center building behind retained vegetation.

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Source: EA|Blumen, Google, 2011

EA | BLUMEN

Figure 3.10-4

Mason County Site - Viewpoint Location Map

Existing

Proposed

Yellow hatching indicates where the proposed building would be obscured by vegetation

Source: Integrus Architecture, 2011

EA | BLUMEN

Figure 3.10-5
Mason County Site - Viewpoint 1

Existing

Proposed

Yellow hatching indicates where the proposed building would be obscured by vegetation

Source: Integrus Architecture, 2011

EA | BLUMEN

Figure 3.10-6
Mason County Site - Viewpoint 2

Thurston County Site

Aesthetic Character

Development of the *Westside Prison Reception Center* at the Thurston County Site would change the aesthetic character of the 55-acre currently developed portion of the site from the former Maple Lane Juvenile Detention Facility to a more densely developed area with a new building occupying a larger footprint where open space and several buildings associated with the former Maple Lane Juvenile Detention Facility are presently located.

The majority of the prison reception center on this site would be located east of the existing maple tree-lined main access road, including the main prison reception center building and a 100-stall surface parking lot located directly to the north of the new building. To accommodate reception center development, demolition of certain existing buildings associated with the previous Maple Lane Juvenile Detention Facility would be required, including demolition of four former housing buildings. See **Figure 3.12-1** in Section 3.12, **Historic Resources**, for a figure showing the existing structures on the site.

Existing buildings located east of the maple tree-lined access road that would be remodeled and utilized for reception center functions include the existing voc-tech building (Building 37) that would be utilized for maintenance functions, the existing multi-service building (Building 11) that would be utilized for food service and laundry, and the new commissary building (Building 38) that would be utilized as a warehouse. In addition, the existing steam plant, associated steam tunnels and existing emergency generator building would be retained and upgraded to service new and existing buildings. Refer to **Figures 2-11** and **2-12** in **Chapter 2** for a site plan and birds-eye view of the proposed facility. One existing building located west of the maple tree-lined main access road would be re-used for bus barn use. The existing fencing which surrounds the developed portion of the site (chain-link topped with barbed wire) would remain.

The aesthetic character of the area west of the main access road would remain largely as described under existing conditions with retention of the approximately 200 space surface parking lot and the existing maintenance building (Building 29) for use as the bus barn facility. A new approximately 100 space staff parking lot would be built to the northwest of the existing parking area. No existing buildings west of the main access road would be demolished.

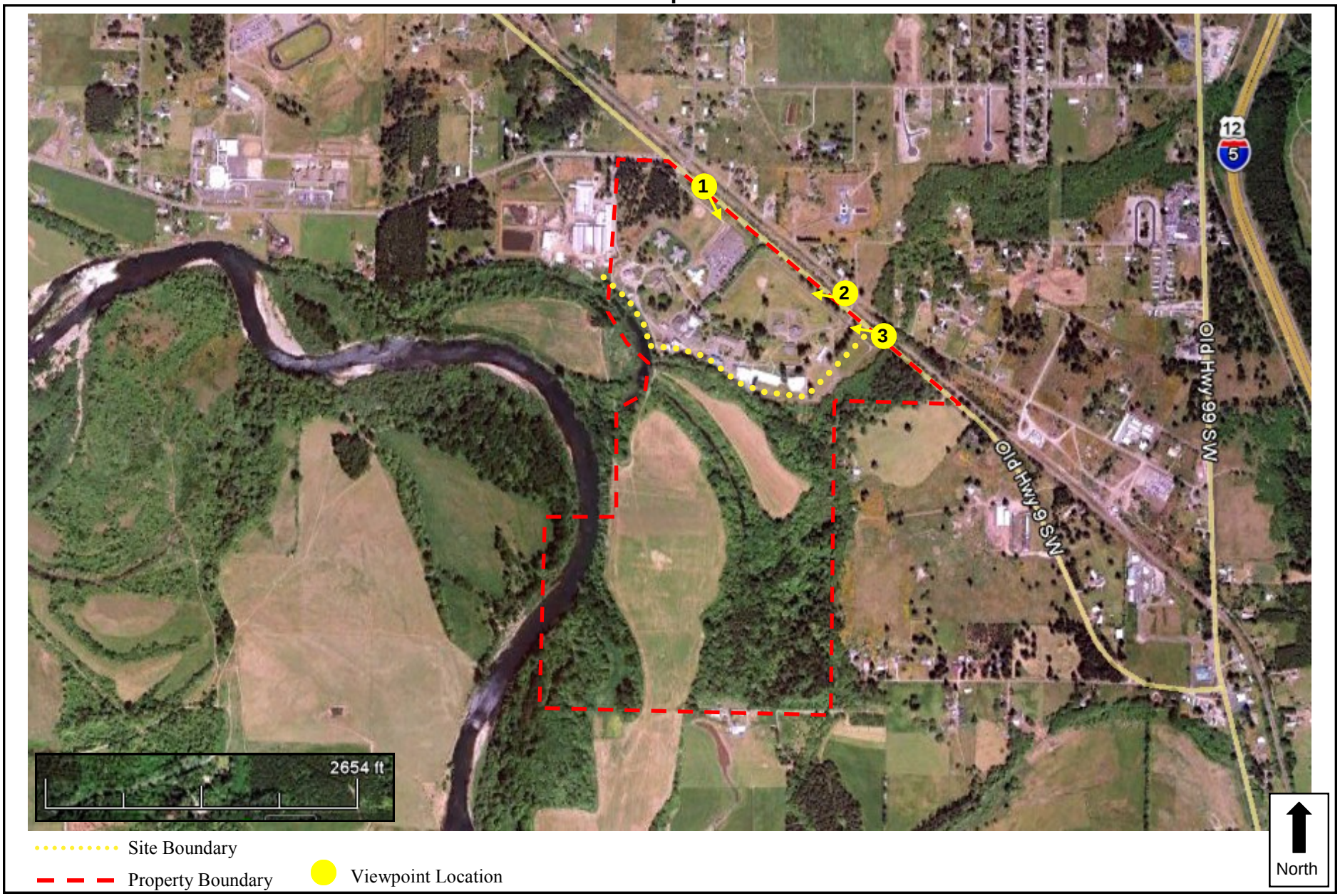
The height of the new building at the Thurston County Site (1-2 stories) would be consistent with existing buildings on the site and with other nearby development, which consists primarily of one to two story buildings, and the scale would be similar to other large facilities such as the dairy farm to the northwest.

The aesthetic character of the 155-acre southern portion of the site would remain undeveloped, as under existing conditions.

Potential Views to the Site

See **Figure 3.10-7** for a map with the viewpoint locations for the Thurston County Site. The following is a discussion of the existing and developed view from each viewpoint.

Washington State Department of Corrections
Westside Prison Reception Center Draft EIS



Source: EA|Blumen, Google, 2011

EA | BLUMEN

Figure 3.10-7

Thurston County Site - Viewpoint Location Map

Viewpoint 1

From Viewpoint 1 – Old Hwy 9 SW Looking Southeast (**Figure 3.10-8**), the current view includes the Old Hwy 9 SW roadway in the foreground with a grassy open space area beyond the road. In the mid-field view, a portion of a surface parking lot is visible. Chain-link fencing topped with barbed wire surrounds the parking area. Mature trees (including the maples which line the main entrance to the site) are visible further to the south, behind the parking lot.

The developed view of the site from this viewpoint would remain as described under existing conditions in the summer. The proposed *Westside Prison Reception Center* would not be visible due to the presence of retained vegetation (primarily the maple trees lining the main access drive). The yellow hatched area in **Figure 3.10-8** represents the location of the prison reception center building behind retained vegetation. During the wintertime, deciduous trees will lose their foliage and some filtered views through the trees to the new building on the eastern portion of the site would be possible. Overall, however, views of the new facility would be expected to be minimal even in the winter.

Viewpoint 2

From Viewpoint 2 – Cross Way Street Looking Southwest (**Figure 3.10-9**), the current view includes the Old Hwy 9 SW and Cross Way Street intersection in the foreground. A grassy shoulder with large mature trees is visible in the midfield view. Behind the trees, the existing perimeter fencing is visible, and in the background, open space and portions of several existing buildings associated with the former Maple Lane Juvenile Detention Facility are visible in the distance.

The developed view of the site would feature portions of the proposed prison reception center facility in the background, behind the existing fencing, which would be retained. The overall visual character from this viewpoint would change from a partial view of multiple existing buildings, to a more densely developed site with a larger building massing and scale. The new building would be closer to the perimeter fencing as compared to the existing view, where buildings are set back with open space.

Viewpoint 3

From Viewpoint 3 – Old Hwy 9 SW Looking Northwest (**Figure 3.10-10**), the current view includes the Old Hwy 9 SW roadway in the foreground with a grassy open space area beyond the road. In the mid-field view, mature trees and vegetation are visible, as well as portions of the chain-link fence which surrounds the site of the former Maple Lane Juvenile Detention Facility. Several buildings associated with the former Maple Lane Juvenile Detention Facility are partially visible in the background.

The developed view would feature portions of the proposed prison reception center facility in the background, behind the existing fencing, which would be retained. The overall visual character from this viewpoint would change slightly from a partial view of multiple existing buildings, to a more densely developed site with a larger building massing and scale. The height of the new facility would be somewhat greater than the existing buildings, but would continue to be below the perimeter fencing, similar to the existing view.

Existing

Proposed

Yellow hatching indicates where the proposed building would be obscured by vegetation

Source: Integrus Architecture, 2011

EA | BLUMEN

Figure 3.10-8
Thurston County Site - Viewpoint 1

Existing

Proposed

Source: Integrus Architecture, 2011

EA | BLUMEN

Figure 3.10-9
Thurston County Site - Viewpoint 2

Existing

Proposed

Source: Integrus Architecture, 2011

EA | BLUMEN

Figure 3.10-10
Thurston County Site - Viewpoint 3

Summary of the Three Site Alternatives

The proposed *Westside Prison Reception Center* facility could be developed at one of the three site alternatives and the proposed facility would intensify the level of development at the selected site. Visual impacts at the Bremerton, Mason County and Thurston County Site alternatives would not be anticipated to be significant. The height of the proposed facility at the three sites would generally be consistent with that of other buildings in the surrounding area, and the scale of the building would be similar to other large-scale buildings in the area. Changes to the overall visual character of the sites would mitigated by retaining some vegetation and trees at the site perimeter. Of the three sites, new development associated with the prison reception center would be most visible to the general public on the Thurston County Site; however, the general character of the site would continue to reflect that of a developed institutional facility. Overall, no significant changes to views to the sites from surrounding viewpoints would result.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives, but the increased demand for additional long-term prison space would remain. Potential aesthetic impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** – Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which could address potential aesthetic impacts from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in new aesthetic-related impacts.

3. **Additional Long-Term Incarceration Capabilities** – Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for space as well as the displaced long-term prison space at the WCC due to increased prison reception center uses. Depending on the location and type of development, the additional long-term incarceration facilities could result in aesthetic-related impacts. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts to aesthetics.

3.10.1.3 Mitigation Measures

No significant adverse aesthetic or viewshed-related impacts are anticipated for the site alternatives. The following measures are proposed to lessen visual impacts of the facility:

- Building facades would be modulated and various materials would be utilized on building facades to provide visual interest.

- Where possible and appropriate, existing trees would be retained to screen and soften views of the proposed facility.

- New landscaping (trees and ornamental shrubs) would be provided at each site, to enhance the aesthetic character of the facility and provide screening from adjacent uses.

3.10.1.4 Significant Unavoidable Adverse Impacts

Prison reception center development would change the aesthetic character of the Bremerton and Mason County Sites, and intensify the aesthetic character of the Thurston County Site. However, no significant unavoidable adverse impacts would be anticipated.

3.10.2 LIGHT AND GLARE

This section of the DEIS describes the existing light and glare conditions associated with the three alternative sites. Potential impacts associated with construction and operation of the *Westside Prison Reception Center* are analyzed.

3.10.2.1 Affected Environment

Bremerton Site

Site

The Bremerton Site is undeveloped and vegetated. There are no light or glare sources on the site currently. The view of the site from existing roadways including SW Lake Flora Road and SR 3, is primarily limited to the vegetation immediately bordering the roadway, which consists of mature trees (deciduous and coniferous) and dense understory vegetation.

Site Vicinity

Sources of light in the immediate vicinity of the Bremerton Site are typical of a rural environment and include stationary and mobile sources. Stationary sources of light include: roadway lighting at the intersection of SW Lake Flora Road and SR 3; and, interior and exterior building lighting associated with rural residential buildings to the northwest (north of SR 3) and southwest (south of SW Lake Flora Road). Existing mobile sources of light associated with the site vicinity include vehicle headlights from vehicles traveling along SW Lake Flora Road and SR 3, and vehicles utilizing residential access driveways/roads. Sources of glare include occasional temporary glare caused by stationary specular surfaces (i.e. glazing as part of building facades, building windows, and glazed areas of parked cars, etc.). Existing mobile sources of glare associated with the site vicinity include vehicle headlights from vehicles traveling along SW Lake Flora Road and SR 3, and vehicles utilizing residential access driveways/roads.

Mason County Site

Site

The Mason County Site is undeveloped and vegetated. There are no light or glare sources on the site currently. The view of the site from SR 102 is primarily limited to vegetation immediately bordering the roadway, which consists of trees and dense understory vegetation.

Site Vicinity

Sources of light and glare in the immediate vicinity of the Mason County Site are typical of a rural environment and include both stationary and mobile sources. Stationary sources of light include: building and security lighting associated with the WCC to the west (the WCC is by far the largest source of lighting in the area); lighting associated with the PUD facility to the west; interior and exterior building lighting associated with an auto junk yard and single family residence to the east. Existing mobile sources of light associated with the site vicinity include vehicle headlights from vehicles traveling along SR 102, and residential access driveways/roads. Occasional temporary glare is caused by stationary specular surfaces (i.e. glazing as part of building facades, building windows, and glazed areas of parked cars, etc.). Existing mobile sources of glare associated with the site vicinity include vehicle headlights from vehicles traveling along SR 102, and residential access driveways/roads.

Thurston County Site

Site

The Thurston County Site contains the former Maple Lane Juvenile Detention Facility, which will be vacated as of December 2011. During operation of the Maple Lane Juvenile Detention Facility, the primary source of lighting was related to securing lighting, building lighting, pedestrian pathway lighting and vehicular headlights; upon closure of the facility, it is assumed that there will be some level of building and security lighting on the site. Existing glare sources include occasional temporary glare caused by stationary specular surfaces (i.e. glazing as part of building facades and building windows).

Site Vicinity

Sources of light and glare in the vicinity of the Thurston County Site are typical of a rural environment and include both stationary and mobile sources. Stationary sources of light include: interior and exterior building lighting associated with residences to the north and east of the site (on the north side of Old Hwy 9 SW); and, rural residential uses and a dairy farm to the west and northwest; a church to the northwest. Existing mobile sources of light associated with the site vicinity include vehicle headlights from vehicles traveling on Old Highway 9 SW, Grand Mound Way SW, James Road SW and residential access driveways/roads. Sources of glare include occasional temporary glare caused by stationary specular surfaces (i.e. glazing as part of building facades, building windows, and glazed areas of parked cars, etc.). Existing mobile sources of glare associated with the site vicinity include vehicle headlights from vehicles traveling on Old Highway 9 SW, Grand Mound Way SW, James Road SW and residential access driveways/roads.

3.10.2.2 Impacts

This section describes the methodology used for this light and glare analysis. General lighting characteristics of the Proposed Action and potential light and glare impacts associated with the proposed *Westside Prison Reception Center* at the three site alternatives are described and evaluated.

Methodology

This analysis includes a qualitative analysis of light and glare impacts. Light impacts are assumed to include misdirected light, stray light, avoidable reflected light, light during hours when it is not needed, and light that is excessively bright, which on occasion can adversely affect motorists, pedestrians and/or areas surrounding the sites.

The primary source of glare impacts includes direct glare from lighting sources (i.e. building and security lighting) and reflective solar glare from specular surfaces (i.e. glazing, luminaire housings). The presence of glare impacts would depend on the viewer's location, what the viewer is trying to see and on the distribution of intervening buildings, terrain and vegetation. The presence and impacts of glare are difficult to quantify, as varying conditions, such as ambient light levels, reflective characteristics of surfaces, and atmospheric conditions, cause the level of impact to vary considerably on an hourly, daily and seasonal basis.

Structures and, to an extent, vegetation can mitigate the environmental impacts of reflected solar glare from glazing. Such can occur if these mitigating factors are located *between* the sun and the glass or specular surface or *between* the reflective surface of the façade and the area potentially affected by reflected solar glare. While coniferous and/or evergreen vegetation typically afford the greatest amount of mitigation, at times deciduous vegetation can also restrict the amount of solar glare that is reflected from glazing -- from approximately late April to late October when leaves are present. While the amount of glare restriction afforded by deciduous trees is substantially less (influenced by the density of the branches), even during this time of the year they can partially restrict and/or diffuse the amount of reflected solar glare emanating from glazed surfaces below a height of 20-30 ft. The *Westside Prison Reception Center* buildings would have a maximum building height of approximately 25-feet (2-stories).

Light/Glare Character of the Proposed Westside Prison Reception Center

The proposed *Westside Prison Reception Center* would include design elements to minimize light trespass from the building and site, reduce sky glow to increase night sky access, improve nighttime visibility through glare reduction and reduce development impact from lighting nocturnal environments; note that no large scale security lighting typically associated with correctional facilities would be provided. For interior lighting visible from the exterior, the proposal would reduce or shield interior lighting as appropriate. For exterior lighting, the goal would be to light areas only as required for safety and comfort.

Bremerton Site

Construction

Construction on the Mason County Site would introduce new temporary sources of light to the area. Area lighting of the job site (to meet safety requirements) may be provided, which could be potentially be noticeable in certain areas proximate to the site. Also, glare could reflect off construction vehicles and equipment, and construction-related vehicle headlights could at times produce light and glare when accessing the site from area roadways. Given the temporary nature of construction and the density of existing vegetation at the site perimeter, such potential impacts are not expected to be significant.

Operation

Operation of the *Westside Prison Reception Center* at the Bremerton Site would result in additional light and glare associated with stationary and mobile sources. The primary stationary sources of light would include: interior and exterior building lighting; parking lot lighting; pedestrian-scale lighting; and, street lighting along the main entry access drive and emergency egress exit drive. Occasional temporary glare could be caused by stationary specular surface (i.e. glazing as park of building facades, building windows, and glazed areas of parked cars in the onsite parking lots, etc.). New mobile sources of light and glare associated with the Bremerton Site would include light and glare from vehicle headlights (associated with DOC employees, visitors, and buses transporting offenders to and from the facility).

Development on the Bremerton Site would introduce light and glare sources to a previously undeveloped area, and therefore the overall level of light emanating from the site would be greater than currently exists. Lighting fixtures would include features to focus lighting on the site and limit light directed toward off-site properties. As well, approximately 18 percent of the site area would remain in vegetation, which would help to buffer potential light and glare impacts from offsite properties. Overall, no significant light or glare impacts would be anticipated.

Mason County Site

Construction

Construction light and glare impacts at the Mason County Site would be generally as described for the Bremerton Site. That is, area lighting of the job site (to meet safety requirements) may be provided, which could be potentially be noticeable in certain areas proximate to the site. Also, glare could reflect off construction vehicles and equipment, and construction-related vehicle headlights could at times produce light and glare when accessing the site from area roadways. Given the temporary nature of construction and the density of existing vegetation at the site perimeter, such potential impacts are not expected to be significant.

Operation

Operation of the *Westside Prison Reception Center* at the Mason County Site would result in additional light and glare associated with stationary and mobile sources. The primary stationary sources of light would include: interior and exterior building lighting; parking lot lighting; pedestrian-scale lighting; and, street lighting along the main entry access drive and emergency

egress exit drive. Occasional temporary glare could be caused by stationary specular surface (i.e. glazing as park of building facades, building windows, and glazed areas of parked cars in the onsite parking lots, etc.). New mobile sources of light and glare associated with the Mason County Site would include light and glare from vehicle headlights (associated with DOC employees, visitors, and buses transporting offenders to and from the facility).

Development on the Mason County Site would introduce light and glare sources to a previously undeveloped area, and therefore the overall level of light emanating from the site would be greater than currently exists; lighting on the site would be less than that generated by the WCC to the west. Lighting fixtures would include features to focus lighting on the site and limit light directed toward off-site properties. As well, approximately 14 percent of the site area would remain in vegetation, which would help to buffer potential light and glare impacts from offsite properties. Overall, no significant light or glare impacts would be anticipated.

Thurston County Site

Construction

Construction on the Thurston County Site would introduce new temporary sources of light to the area. Area lighting of the job site (to meet safety requirements) may be provided, which could be potentially be noticeable in certain areas proximate to the site. Also, glare could reflect off construction vehicles and equipment, and construction-related vehicle headlights could at times produce light and glare when accessing the site from area roadways. Given the temporary nature of construction, such potential impacts are not expected to be significant.

Operation

Operation of the *Westside Prison Reception Center* at the Thurston County Site would result in additional light and glare associated with stationary and mobile sources. The primary stationary sources of light would include: interior and exterior building lighting; parking lot lighting; pedestrian-scale lighting; and, street lighting along the main entry access drive and emergency egress exit drive. Occasional temporary glare could be caused by stationary specular surface (i.e. glazing as park of building facades, building windows, and glazed areas of parked cars in the onsite parking lots, etc.). New mobile sources of light and glare associated with the Mason County Site would include light and glare from vehicle headlights (associated with DOC employees, visitors, and buses transporting offenders to and from the facility).

The overall level of light emanating from the site would be similar to that which occurred when the former Maple Lane Juvenile Detention Facility was in operation. Lighting fixtures would include features to focus lighting on the site and limit light directed toward off-site properties. As well, approximately five percent of the currently developed portion of the site would remain in landscaping and vegetation, which would help to buffer potential light and glare impacts from offsite properties. Overall, no significant light or glare impacts would be anticipated.

Summary of the Three Site Alternatives

The proposed *Westside Prison Reception Center* would introduce new sources of light and glare to the area of the site that is selected, during both construction and operation of the facility. At the Bremerton and Mason County Sites, the project would introduce light and glare

sources to a previously undeveloped area, and therefore the overall level of light emanating from the site would be greater than currently exists. At the Thurston County Site, the overall level of light emanating from the site would be similar to that which occurred when the former Maple Lane Juvenile Detention Facility was in operation. Lighting fixtures would include features to focus lighting on the site and limit light directed toward off-site properties. No significant impacts would be anticipated at any of the site alternatives.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives, but the increased demand for additional long-term prison space would remain. Potential light and glare impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** – Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which could address potential light and glare-related impacts from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in new light and glare-related impacts.

3. **Additional Long-Term Incarceration Capabilities** – Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for space as well as the displaced long-term prison space at the WCC due to increased prison reception center uses. Depending on the location and type of development, the additional long-term incarceration facilities could result in aesthetic-related impacts. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential light and glare impacts.

3.10.2.3 Mitigation Measures

The following mitigation measures could be implemented for light and glare impacts associated with development of the proposed *Westside Prison Reception Center* at any of the site alternatives:

- Where possible, existing trees would be retained and new trees provided in order to screen and soften new light and glare-related impacts from the proposed facility.

- Reflectivity of glazing materials and the use of shading devices as part of the building façade design would be considered in order to minimize the potential glare-related impacts to surrounding uses.

- Exterior building lighting and pedestrian lighting would be specified and located to ensure that light is directed downward and away from adjacent off-site properties to minimize the light-spillage related impacts to nearby uses.

3.10.2.4 Significant Unavoidable Adverse Impacts

Prison reception center development would result in an increase in light and glare conditions on the Bremerton and Mason County Sites, and generally represent a continuation of light and glare conditions on the Thurston County Site. No significant unavoidable adverse light and glare-related impacts would be anticipated.

3.11 CULTURAL RESOURCES

This section characterizes the potential for cultural resources to be present on the three site alternatives, and identifies potential impacts to these resources. This section is based on the 2011 *Cultural Resources Technical Report* prepared by Northwest Archaeological Associates / SWCA (see **Appendix G**).

3.11.1 Affected Environment

Regulatory Overview

Several Washington state laws specially address archaeological sites and Native American burials, and would pertain to development of the proposed *Westside Prison Reception Center* at all of the site alternatives. The Archaeological Sites and Resources Act [RCW 27.53] prohibits knowingly excavating or disturbing prehistoric and historic archaeological sites on public or private land without a permit issued by the Washington State Department of Archaeology and Historic Preservation (DAHP). The Indian Graves and Records Act [RCW 27.44] prohibits knowingly destroying American Indian graves and provides that inadvertent disturbance through construction or other activities requires re-interment under supervision of the appropriate Indian tribe. In order to prevent the looting or depredation of sites, any maps, records, or other information identifying the location of archaeological sites, historic sites, artifacts, or the site of traditional ceremonial, or social uses and activities of Indian Tribes are exempt from disclosure [RCW 42.56.300].

As well, Executive Order 05-05 "Archaeological and Cultural Resources" requires state agencies to review impacts to cultural resources from projects that are not undergoing Section 106 review for the National Historic Preservation Act (NHPA). Section 106 requires federally assisted, regulated, or permitted undertakings to identify historic properties (i.e., buildings, structures, objects, or archaeological sites included in or eligible for inclusion in the National Register of Historic Places) and to take into account the effects of the project on these properties.

Analysis Methodology

In order to assess the potential for archaeological resources to be present at each site, the Department of Archaeology and Historic Preservation (DAHP) database was consulted to identify previous cultural resource investigations on and in the vicinity of each site. Published historic and ethnographic accounts, environmental data, historic maps, assessor records, University of Washington Libraries, and the Seattle Public Library were also consulted to assess the potential for sensitive cultural resources to be present at each site. In addition, various environmental and geotechnical reports on the project area were reviewed.

The criteria used to assess cultural resource sensitivity included local topography, resource and habitat availability, viewshed considerations, ethnohistoric associations, and the proximity of previously recorded cultural resources. Geologic and geomorphologic data indicates when the land became suitable for occupation and the suitability of landforms for pre-contact use, such as level terrain. Other significant factors include proximity of wetland, riverine, or lacustrine habitat; level areas with slopes less than 30 percent along terraces or ridge crests; views of adjacent

lakes, wetlands, or river valleys; and opportunities for travel such as along river valleys and passages between drainage basins.

Ethnographic place names are obvious indicators of native presence in an area, with designations that include village locations, landmarks and other landscape features, resource gathering areas, and spirit places such as emergence sites of ancestors or legendary beings. Historic maps, including General Land Office (GLO) survey plats from the 1800s and early topographic maps, show historic habitats such as wetlands and stream courses that may have been altered by historic activities. GLO maps also show homestead locations, structures, trails, and early roads.

Archaeological sensitivity is apparent in places where pre-contact or historic period archaeological sites have been recorded. Knowing the extent of cultural resource investigations in an area with known sensitivities provides some measure of assessing the likelihood of undiscovered resources to be present. Depending on the nature and extent, local disturbance can reduce the potential for archaeological resources.

Environmental and Cultural Overview

Archaeological and historical evidence indicates that Native Americans moved into the Pacific Northwest as the last ice age came to an end, occupying western Washington for at least the last 12,000 years. More evidence is available for occupation after about 5,000 years ago, and especially for the last 2,500 years when populations apparently increased and large, permanent villages were inhabited. The human history of the area is a response to the availability of natural resources of freshwater rivers, streams, marshes, sloughs, and prairies; from littoral settings; and from upland forests and meadows. Later, Euroamerican inhabitants were drawn by timber and mineral resources, as well as homesteading opportunities, settling lands where maritime traffic could be established for transporting timber products and agricultural goods.

In historic times, the vicinities of the proposed sites were occupied by Southern Coast Salish-speaking groups, organized mainly along extended family and band lines and oriented to permanent winter villages located at the confluences of major rivers and streams and often associated with particular watersheds and resource use areas.[1] Salish groups depended on salmon, game, and wild plant foods, collected over an annual cycle within the varied habitats throughout their territories.

See **Appendix G** for further information on the environmental context, geology, geomorphology, prehistory, ethnography, ethnology and history of the region in which the site alternatives are located.

Bremerton Site

The Bremerton Site is on a gently sloping terrace overlooking the Union River with drainage to the west, wetlands to the north and southeast, and numerous creeks in the vicinity. The site area was home to groups ancestral to the Suquamish Tribe, whose traditional territory was centered on Puget Sound between the eastern Kitsap peninsula and Hood Canal, and included Bainbridge Island and portions of Whidbey Island. The variety of habitats in the Bremerton Site

[1] Spier 1936; Suttles 1987; Suttles and Lane 1990.

area would have provided a wide range of plant and animal resources useful to Native Americans. Ethnographic sources indicate Suquamish use areas in the vicinity. The site is on the southern edge of the City of Bremerton, an area that subjected to logging in the late 19th and early 20th century.

No archaeological resources are documented on the site or in the immediate vicinity (i.e. within ½ mile). However, given the types of resource habitats that would have been available to native peoples in the surrounding creeks and wetlands and the site's lack of prior development, the Bremerton Site has the potential to contain pre-contact archaeological resources. Lithic isolates and scatters on or near the surface related to camping and resource procurement would be the most probable finds. There is also some potential for remains related to logging of the area beginning in the late 1800s. Resources related to logging could include remains of camps such as building foundations, refuse middens, machinery, inclines, flumes, and signs of logging railroad spurs, including rails or grades.

Mason County Site

The Mason County Site vicinity was home to Squaxin groups who occupied inlets in southwestern Puget Sound. Named places along the shores of Case Inlet reflect the presence of Native Americans in the vicinity of the site. The Mason County Site is within an area that would have provided a variety of plant and animal resources for native people. Wetlands, creeks and small lakes provided riparian plants and attracted game and waterfowl. Nearby upland areas offered game and berries and a nearby prairie provided an environment for gathering roots, berries and hunting. Fish and shellfish were available in Case Inlet and other coves and inlets to the west.

No archaeological resources are documented on the site or in the immediate vicinity (i.e. within ½ mile). However, given the resources that would have been available in the area and the proximity to Native American use areas in the inlets to the east and north, the site has the potential to contain pre-contact finds, similar to other undeveloped lands in the area. As well, a trail indicates that the site was along a travel route in the 1880s to the property of David Shelton (the City's namesake and one of its earliest settlers) and Hammersley Inlet. As the site was previously logged, there is also some potential for remains related to logging of the area beginning in the late 1800s. Logging related resources could include remains of campus such as building foundations, refuse middens, machinery, inclines, flumes, and signs of logging railroad spurs, including rails or grades.

Thurston County Site

The Thurston County Site is located south of the town of Grand Mound on a terrace overlooking the Chehalis River. The site is within the territory of the Upper Chehalis people, part of the Southern Coast Salish language group. The Upper Chehalis were an inland group occupying winter villages along the Chehalis River from just below its confluence with the Satsop River to the Centralia vicinity. The watershed and surrounding lands on and in the site vicinity, including nearby prairies, would have provided a variety of resources to Native Americans. Previous cultural resource investigations conducted on and near the Thurston County Site have identified several archaeological sites, including one recorded site within the site boundary and one in the immediate vicinity (i.e. within 0.5 mile); the recorded archaeological site identified on the site is

described as a pre-habitation open camp containing detritus, located in an area outside of the perimeter fence in a currently undeveloped area.

The Thurston County Site is also the location of the first female correctional institution in Washington. Development and operation of the school has disturbed surface deposits, but there is some potential for pre-contact materials to be found in undisturbed areas (see Section 3.12, **Historic Resources**, for more information on the school). It is also possible that remains related to the earlier structures and the farm associated with the girls' school formerly operated on this site could be found. Building foundations and timbers, farming implements and artifacts related to farming and the girls' general activities could be present. Historic period resources could also include features related to early settlement such as building foundations, fence lines, rock walls, ditches, ditches, privies, and refuse middens.

3.11.2 Impacts

This section summarizes the potential archaeological impacts associated with the proposed *Westside Prison Reception Center* at the three site alternatives. Similar to most properties in the Puget Sound lowland, archaeological resources could be encountered during construction (i.e. during grading activities) at any of the sites; the potential for encountering these resources would vary, as discussed below. No impacts are expected to result from operation of the proposed *Westside Prison Reception Center* facility.

Bremerton Site

As described in the previous *Affected Environment* section, similar to most undeveloped properties in the Puget Sound lowlands, there is a possibility that pre-contact and historical archaeological resources could be present at the Bremerton Site. Grading for construction of the proposed facility at this site could require up to 20 feet of excavation for the in order to achieve a level building site and to create the main access road extending northeast from SW Lake Flora Road. Parking areas, access driveways and detention ponds would also require modification of the existing topography (see Section 3.1, **Earth**, for details). These grading activities have the potential to encounter archaeological deposits. With the implementation of an archaeological monitoring and discovery plan during certain construction activities, no significant impacts would be anticipated.

Also, although no traditional cultural properties have been identified in the vicinity, it is possible that noise from construction activities could adversely affect nearby locations if tribal activities were being carried out. The Bremerton Airport and area roadways would also contribute to noise levels in the site vicinity.

Mason County Site

As described in the previous *Affected Environment* section, similar to most undeveloped properties in the Puget Sound lowlands, there is a possibility that pre-contact and historical archaeological resources could be present at the Mason County Site. Grading for construction of the proposed facility at this site would require five to 10 feet of excavation in order to achieve a level building area in the central and southern portions of the site. Excavations to a depth of 10 to 20 feet could be necessary for the access roads. Parking areas, driveways and detention ponds would also require modification of the existing topography (see Section 3.1, **Earth**, for

details). These grading activities have the potential to encounter archaeological deposits. With the implementation of an archaeological monitoring and discovery plan during certain construction activities, no significant impacts would be anticipated.

Thurston County Site

As described in the previous *Affected Environment* section, there is a possibility that pre-contact and historical archaeological resources could be present at the Thurston County Site. Minor excavation (less than 5 feet) is expected to be necessary at this site, as the assumed development area is nearly level. Minor excavations are also expected for new driveways, parking areas and stormwater infiltration features (see Section 3.1, **Earth**, for details). These grading activities have the potential to encounter archaeological deposits. To avoid adverse impacts to cultural resources associated with the recorded archaeological site located outside of the currently developed portion of the site, additional archaeological survey, including subsurface testing could be carried out in conjunction with the project design to determine if archaeological resources are present.

Summary of the Three Site Alternatives

Archaeological resources (pre-contact and historic) could be present at any of the sites and could be disturbed during construction activities. The likelihood of disturbance to archaeological resources is considered greatest on the Thurston County Site, where archaeological resources have been previously identified within the site boundary and in close proximity to the site. With implementation of appropriate mitigation measures, including some archaeological survey with subsurface testing, no significant impacts would be expected. Archaeological resources could also be encountered at the Bremerton and Mason County Sites, where there has been limited disturbance from previous development on the site or surrounding area. The probability of discovering archaeological resources at these sites would likely be similar to most properties in the Puget Sound lowland, and implementation of a monitoring and discovery plan during construction would preclude significant impacts.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives, but the increased demand for additional long-term prison space would remain. Potential cultural resource-related impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** – Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential cultural resource-related impacts resulting from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in new cultural resource-related impacts.

3. **Additional Long-Term Incarceration Capabilities** – Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for space as well as the displaced long-term prison space at the WCC due to increased prison reception center uses. Depending on the location of the additional long-term incarceration facilities, such construction could result in cultural resource-related impacts. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential cultural resource-related impacts.

3.11.3 Mitigation Measures

All Sites

- To avoid adverse impacts to cultural resources, additional archaeological survey, including subsurface testing using archaeological methods (i.e., shovel and/or hand auger testing) should be carried out in conjunction with the project design footprint to determine if archaeological resources are present.

- If at any time during construction archaeological resources are observed on the site, they would be evaluated and adverse impacts from the project would be assessed. If the resource is determined to be a historic property, impacts would be avoided or minimized through measures determined in consultation with DAHP. If impacts cannot be avoided or minimized, data recovery may be a suitable form of mitigation.

Bremerton Site

- If the Bremerton Site were chosen as the site for the prison reception center, the DOC would continue to consult with the Suquamish Tribe regarding the potential presence of cultural resources of significance to the tribe within the Bremerton Site, as well as the potential for construction activities and noise to interfere with traditional use of nearby locations where cultural practices could require privacy and quiet.

Mason County Site

- If the Mason County Site were chosen as the site for the prison reception center, the DOC would continue to consult with the Chehalis Tribe regarding the potential presence of cultural resources of significance to the tribe within and in the vicinity of the Mason County Site.

Thurston County Site

- If the Thurston County Site were chosen as the site for the prison reception center, the DOC would continue to consult with the Chehalis Tribe regarding the potential presence of cultural resources of significance to the tribe within and in the vicinity of the Thurston County Site.

3.11.4 Significant Unavoidable Adverse Impacts

With implementation of identified mitigation measures, no significant unavoidable adverse impacts would be anticipated.

3.12 HISTORIC RESOURCES

This section characterizes the potential for historic resources to be present on the three site alternatives, and identifies potential impacts to these resources. This section is based on the 2011 *Historic Resources Technical Report* prepared by BOLA Architecture + Planning (see **Appendix K**).

3.12.1 Regulatory Overview

Introduction

Designated landmarks are those properties that have been recognized locally, regionally or nationally as significant resources to the community, city, state or nation. Recognition may be provided by listing in the National Register of Historic Places (NRHP) or the Washington Heritage Register (WHR); through a nomination process managed by the Washington State Department of Archaeology and Historic Preservation (DAHP); or, by listing as a local landmark. Typically, a property is not eligible for consideration for listing in the NRHP or WHR until it is at least 50 years old.

National Register of Historic Places

The National Park Service administers the NRHP, which is the official federal list of districts, sites, buildings, structures and objects significant in American history, architecture, archaeology, engineering and culture. National Register properties have significance to the history of their community, state or the nation. Nominations for listing historic properties come from State Historic Preservation Officers, from Federal Preservation Officers for properties owned or controlled by the United States Government and from Tribal Historic Preservation Officers for properties on tribal lands. Private individuals and organizations, local governments and American Indian tribes often initiate this process and prepare the necessary documentation. In Washington State, the Washington State Advisory Council on Historic Preservation, organized and staffed by DAHP, considers each property proposed for listing and makes a recommendation on its eligibility.

To be eligible for listing, a property must normally be at least 50 years of age and possess significance in American history and culture, architecture or archaeology to meet one or more of four established criteria.

Historic resources eligible for listing in the National Register may include buildings, sites, structures, objects, and historic districts. A resource less than 50 years of age may be eligible if it can be demonstrated that sufficient time has passed to understand its historic importance or if the resource is determined to have 'exceptional' importance. To be eligible for listing in the National Register, a property must also have integrity, which is defined in the NRHP listing criteria as "the ability of a property to convey its significance." Within the concept of integrity, the NRHP recognizes seven aspects or qualities that in various combinations define integrity: feeling, association, workmanship, location, design, setting and materials.[1]

[1] National Park Service. *How to Apply the National Register Criteria for Evaluation*. National Register Bulletin, 15. U.S. Department of the Interior, National Park Service, Interagency Resources Division, 1997.

Washington Heritage Register

The Washington Heritage Register is an official listing of historically-significant sites and properties found throughout the state. The list is maintained by DAHP and includes districts, sites, buildings, structures and objects that have been identified and documented as being significant in local or state history, architecture, archaeology, engineering or culture. Sites which are listed in the NRHP are automatically added to the Washington Heritage Register.

Anyone may prepare and submit a nomination to DAHP. Complete nominations are scheduled for consideration by the State Advisory Council. To be eligible for listing, a property must qualify under the following:

- A building, site, structure, or object must be at least 50 years old. If newer, the resource should have documented exceptional significance.
- The resource should have a high to medium level of integrity, i.e. it should retain important character-defining features from its historic period of construction.
- The resource should have documented historical significance at the local, state or federal level.

Thurston County Historic Register

Thurston County maintains a Historic Register which is the official list of places (sites, buildings and structures) important to the history of Thurston County. The Thurston County Historic Register recognizes properties that are at least 50 years old that have demonstrated architectural or historic significance and which retain integrity (i.e. have not undergone changes which substantially alter their historic appearance).[2]

3.12.2 Affected Environment

Bremerton Site

The Bremerton Site is presently undeveloped and contains no buildings. No designated historic buildings were identified in the area immediately surrounding the site.

Mason County Site

The Mason County Site is presently undeveloped and contains no buildings. No designated historic buildings were identified in the area immediately surrounding the site.

Thurston County Site

The Thurston County Site is located on the grounds of Maple Lane School, originally known as the State School for Girls. Established by the state in 1913, the school opened the following

[2] Thurston County Comprehensive Plan, 2005.

year. Before that time, the Washington State Reform School (renamed the State Training School in 1907) established in 1891, served boys and girls who had committed crimes or were orphans. These "inmates" were required to work—learning such skills as farming and carpentry—as well as to receive an education.

In 1910, the State Training Schools Superintendent made a request to the Governor for separation of the boys and girls. The State Legislature enacted a law in 1913 that "establish[ed] a state school for girls in conjunction with the Washington State Training School".[3] The establishing act specified that the site would be "within a radius of not less than one mile and not more than ten miles of the State Training School at Chehalis," that the superintendent and staff would be women, and that the girls would be instructed "in all of the branches usually taught in the grades of the common schools of the state, also in such trades and vocational occupations as may be found desirable." To be committed, a girl had to be "more than ten and under eighteen...[and] found delinquent under the juvenile delinquency law of this state." Once committed, the girl could be held until age 21, unless paroled or discharged earlier. Girls had to be mentally and physically healthy—"of sound mind," not subject to fits, and healthy enough to receive the discipline of the school.

The site near Grand Mound was selected and purchased for $20,000, and the school opened December 22, 1914. In addition to the educational regimen, the school offered "a virtual course in farming and animal husbandry…The girls milked cows, provided for bees, and harvested crops...They raised and slaughtered livestock and canned produce."[4]

In the early 1950s, the school's population increased and its purpose began to evolve from a punitive program to a more rehabilitative and educational facility. Due to these changes, the State School requested its name be changed to "Maple Lane Village." In 1959, the Legislature officially changed the name to Maple Lane School. Another change came with the inclusion of boys in the educational classes, beginning in 1961. At first the boys were bussed daily from Cedar Creek Youth Camp; they did not live at Maple Lane. Shortly thereafter, housing was constructed in order for the boys to become permanent residents at the former State School for Girls. The number of resident male offenders increased steadily over the ensuing months until the boys eventually outnumbered the girls on campus. In 1979, Cedar Creek Youth Camp was converted to a minimum-security adult correctional facility, and all remaining juvenile delinquent boys were removed from the Cedar Creek Youth Camp grounds.

By 1982, Maple Lane had once again experienced a shift, this time from a facility resembling a residential high school with minimal security to one housing serious juvenile felons. In January 1982, the last female at Maple Lane was sent to Echo Glen Children's Center in Issaquah, and the state institution originally established as the State School for Girls in 1913 became a male-only facility. The school operated as the all male Maple Lane Juvenile Detention Facility until its recent closure in the summer of 2010.

Buildings and Site

The Maple Lane School campus is comprised of approximately 55 acres (of a 209-acre site) along Old Highway 9 SW, in the I-5 corridor but near the edge of a largely rural and forested

[3] Session Laws, Chapter 157.

[4] State Historic Property Inventory form, 1985.

area. The campus is roughly semi-circular, with the highway providing a straight boundary to the northeast, while a curving minor roadway within the campus forms the remainder of the outer edge. Bisecting the half circle is the entry road from which the school took its name—a maple tree-lined lane that terminates in front of the Administration Building. A formal sequence from the roadway onto campus is formed by two curvilinear concrete entry pylons, the long drive flanked by mature maple trees, and the "arrival" at the Administration Building, which dates from the earliest period of the campus. This pathway is also lined with historic streetlights. A perpendicular pathway extends east-west from in front of the Administration Building. The immediate context and historic site of the Administration Building is formed by these features, including approximately 120 feet of the east-west pathway to either side of the Administration Building.

Campus buildings are arranged along curvilinear road- and pathways. They are generally located along the southern and western portions of the site, divided from the main road by an expansive, grassy open space. The inner-ring roadway that continues east from the terminus of the lane in front of the Administration Building is lined with maples and conifers. Buildings on the campus are not unified by any particular style, era, or architectural characteristics. The Administration Building is the only structure that remains from the original or early campus development. There are utilitarian structures that date from the early 1920s and 1930s, two buildings from 1951, and three utilitarian buildings constructed in 1961; but most of the living units were replaced or extensively remodeled in the 1990's, and the majority of buildings on campus date from the 1980s and 1990s.

For analysis of impacts, an Area of Potential Effects (APE) has been defined as a portion of the campus surrounding the proposed project site, essentially the southeast section of the campus. The APE is generally bounded by the property line on the northeast (along Old Highway 9 SW), the maple-lined entry drive on the northwest, and a curving line that primarily follows the outer pathways of the site (see **Figure 3.12-1**).

Table 3.12-1 lists the buildings and structures currently located on the Thurston County Site together with the date of construction. Of these buildings, 12 are 50 years old or older (including buildings 8, 10, 15, 16, 18, 19, 20, 21, 22, 23, 25 and 25A).

Table 3.12-1
THURSTON COUNTY SITE – EXISTING BUILDINGS

Bldg. #	Building Name	Date Built	Size (Sq. Ft.)
7	Spruce	1967	4,356
8*	Birch	1951	8,858
9	Laurel (exterior remodel 1997)	1971	7,750
10*	Administration (remodeled 1996)	1917	30,004
11	Multi Purpose Building	1982	30,346
15*	School & Gym	1951	33,000
16*	Power Plant	1920	3,840
18*	Commissary (old)	1961	3,600
19*	Old Carpenter Shop	1961	2,660
20*	Old Paint Shop	1961	2,660
21*	Old Plumbing Shop & storage	1920	2,400
22*	Vocational Barn	1930	1,600
23*	Machinery & Wood Storage	1930	1,090

Bldg. #	Building Name	Date Built	Size (Sq. Ft.)
25*	Pump House #1	1931	100
25-A*	Pump House #2	1931	100
26	Generator Building	1977	1,053
27	Gas Pump House	1979	342
28	Security Building/Gate House	1985	480
29	Maintenance Building	1987	10,327
30	Olympic	1993	7,319
31	Rainier	1993	7,319
32	Pacific	1993	7,319
33	Level 1 Building	1995	24,135
34	Water Pumps & Chlorination Bldg.		658
35	Elevated Water Tank		0
36	Ground Level Water Tank		0
37	Voc-Tech	1998	10,450
38	New Commissary	1998	4,513
39	64-bed Cottage – Cascade	1998	16,618
40	64-bed Cottage – Columbia	1998	16,618
41	64-Bed Mechanical Building	1998	624

Source: Washington State DSHS, 2010.
***Indicates buildings 50 years or older as of 2012.**

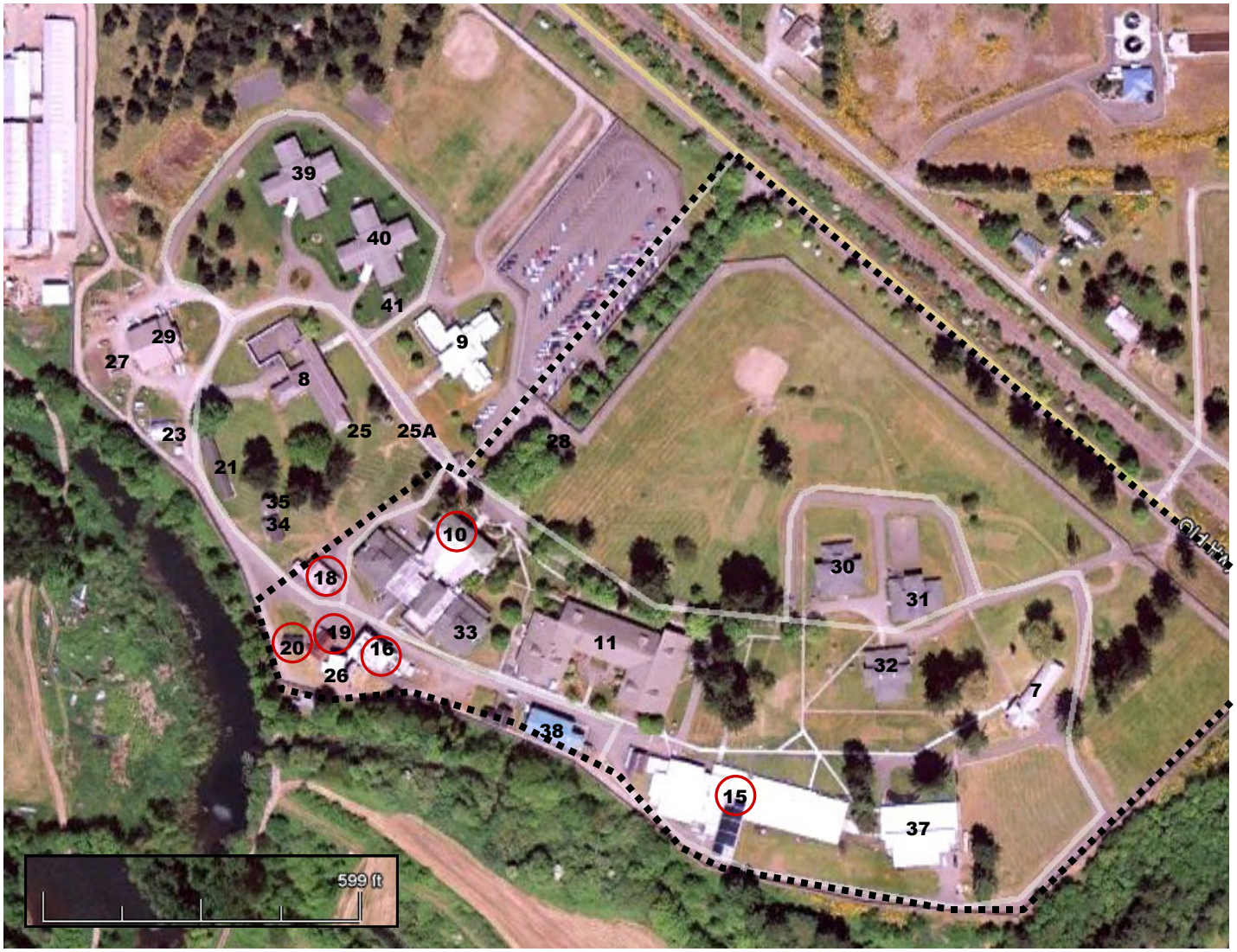
Table 3.12-2, below, lists the 16 buildings which are located within the APE; of these, six were constructed in 1962 or earlier.

Table 3.12-2
THURSTON COUNTY SITE – BUILDINGS WITHIN THE APE

Bldg. #	Building Name	Year Built	Listing Status	NRHP Eligibility Recommendation
7	Spruce	1967		Not eligible – age
10	Administration	1917	NRHP, WHR	
11	Multi Purpose Building	1982		Not eligible – age
15	School & Gym	1951		Not eligible
16	Power Plant	1920		Not eligible
18	Commissary (old)	1961		Not eligible
19	Old Carpenter Shop	1961		Not eligible
20	Old Paint Shop	1961		Not eligible
26	Generator Building	1977		Not eligible – age
28	Security Building/Gate House	1985		Not eligible – age
30	Olympic	1993		Not eligible – age
31	Rainier	1993		Not eligible – age
32	Pacific	1993		Not eligible – age
33	Level 1 Building	1995		Not eligible – age
37	Voc-Tech	1998		Not eligible – age
38	New Commissary	1998		Not eligible – age

Source: BOLA Architecture + Planning, 2011.

Washington State Department of Corrections
Westside Prison Reception Center Draft EIS



Bldg.	Building Name
7	Spruce
8*	Birch
9	Laurel (exterior remodel 1997)
10*	Administration (remodeled 1996)
11	Multi Purpose Building
15*	School & Gym
16*	Power Plant
18*	Commissary (old)
19*	Old Carpenter Shop
20*	Old Paint Shop
21*	Old Plumbing Shop & storage
23*	Machinery & Wood Storage
25*	Pump House #1
25-A*	Pump House #2
26	Generator Building
27	Gas Pump House
28	Security Building/Gate House
29	Maintenance Building
30	Olympic
31	Rainier
32	Pacific
33	Level 1 Building
34	Water Pumps & Chlorination Bldg.
35	Elevated Water Tank
37	Voc-Tech
38	New Commissary
39	64-bed Cottage – Cascade
40	64-bed Cottage – Columbia
41	64-Bed Mechanical Building

Historic Resources APE Boundary

buildings that date from 1962 or earlier

North

Source: EA|Blumen, 2011

EA | BLUMEN

Figure 3.12-1

Thurston County Site - Existing Buildings

One building within the APE, the Administration Building, is listed in the NRHP and WHR. There are six other buildings within the APE that were constructed in 1962 or earlier, but none of them appear to be eligible for listing in the NRHP, WHR, or Thurston County Historic Register. This is due either to building alterations or to insufficient historical or architectural significance to meet Criterion A or C as an individually listed property. (See the State Historic Property Inventory forms in **Appendix K**, for further discussion of eligibility evaluation of each building.)

No designated historic buildings were identified in the area immediately adjacent to or surrounding the site.

3.12.3 Impacts

Bremerton Site

No historic resources were identified on or immediately adjacent to the Bremerton Site. Therefore, no direct or indirect historic-resource related impacts would be anticipated to result from construction or operation of the *Westside Prison Reception Center* at this site.

Mason County Site

No historic resources were identified on or immediately adjacent to the Mason County Site. Therefore, no direct or indirect historic-resource related impacts would be anticipated to result from construction or operation of the *Westside Prison Reception Center* at this site.

Thurston County Site

The majority of the reception center on this site would be located east of the existing maple tree-lined main access road, including the main reception center building and surface parking accommodating 100 public parking spaces. To accommodate reception center development, demolition of the following existing buildings associated with the previous Maple Lane Juvenile Detention Facility located east of the maple tree-lined access road would be required:

- Spruce (Building 7)
- Olympic (Building 30)
- Rainier (Building 31)
- Pacific (Building 32)

Certain existing buildings located east of the main access road would be remodeled and utilized for reception center functions, including:

- Voc-Tech Building (Building 37) that would be utilized for maintenance functions
- Multi-Purpose Building (Building 11) that would be utilized for food service and laundry
- New Commissary (Building 38) that would be utilized as a warehouse
- Power Plant and associated steam tunnels (Building 16)
- Generator building (Building 26)

Prison reception center uses in the portion of the site west of the main access road would include use of the existing approximately 200 space surface lot, creation of a new approximately

100 space staff parking lot and use of the existing maintenance building (Building 29) for bus barn use. No existing buildings west of the main access road would be demolished.

The remaining existing buildings on the Thurston County Site, including the historic Administration Building, would be retained in place but would not be reused for the prison reception center operations. These retained buildings would be maintained to a low level of operation to prevent damage or deterioration from mold, freezing, flooding, etc.

Construction Impacts

The four buildings planned for demolition within the APE are not historic. Potential indirect and/or temporary construction-related impacts that could affect the Administration Building and its historic site include the following:

- Potential Structural Instability/Undermining – Damage that could occur to an historic resource due to structural instability caused by construction-related vibration and/or earthwork.

- Temporary Dirt/Unintended Damage – Introduction of atmospheric elements that may temporarily alter and/or potentially damage historic building fabric or architectural features.

With the implementation of appropriate mitigation measures, no significant impacts would be anticipated.

Operational Impacts

The preliminary design concept for the prison reception center leaves the historic Administration Building vacant. Development of the new prison reception center buildings in proximity to the existing, historic Administration Building and its associated historic site would change the visual context/character of this historic resource. While the development of the *Westside Prison Reception Center* would be similar in general character to existing newer buildings on the site associated with the Maple Lane Juvenile Detention Facility, it would result in a more dense development on the campus and introduce additional parking immediately adjacent to the maple-lined driveway. The proposed project would essentially fill the open space to the east of the entry drive.

Summary of the Three Site Alternatives

No historic resources were identified on or immediately adjacent to the Bremerton Site or the Mason County Site, and no impacts to historic resources would result from development of the *Westside Prison Reception Center* at these locations. One historic building is present on the Thurston County Site, in addition to 12 other buildings and structures which are over 50 years old.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives, but the

increased demand for additional long-term prison space would remain. Potential historic resources-related impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** – Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential historic resource-related impacts resulting from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in new historic resource-related impacts.

3. **Additional Long-Term Incarceration Capabilities** – Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for space as well as the displaced long-term prison space at the WCC due to increased prison reception center uses. Depending on the location of the additional long-term incarceration facilities, such construction could result in historic resource-related impacts. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential historic resource-related impacts.

3.12.4 Mitigation Measures

No mitigation would be required at the Bremerton or Mason County Sites since no historic resources were identified on or immediately adjacent to these sites.

Thurston County Site

- Potential Structural Instability/Undermining – Care should be taken in order to avoid structural damage to the nearby Administration Building that could occur due to construction-related vibrations and/or earthwork. All excavation, earthwork, pile driving, etc. should be designed and monitored in order to minimize and/or immediately address any such impacts to nearby or adjacent historic properties. Monitoring should include crack monitors placed on the Administration Building, periodic observation, and photography to document it structural integrity and determine whether there was resulting damage of interior or exterior finishes, or exterior masonry and/or framing. If such damage occurs as a result of the project, damage should be mitigated through repairs to the building.

- Temporary Dirt/Unintended Damage – Care should be taken in order to avoid or limit the introduction of atmospheric elements that could alter and/or potentially damage historic building fabric or architectural features of the nearby historic resource. All construction activity should be monitored in order to prevent and address any such impacts to the historic property. Consider limiting access near historic properties of construction vehicles carrying excavation materials. Dust control measures would be implemented (see **Section 3.2, Air Quality** of the DEIS for details).

- Administration Building and Associated Features, Context/Character of Surroundings – In order to preserve the historic formal approach sequence to the Administration Building, the proposed new surface parking adjacent to the entry drive could be held back from the edge of the drive, at least as far as the existing fence line, to provide a visual buffer. The entry to this eastern lot should be designed to maintain the symmetrical line of existing trees along the lane and avoid removal of existing trees. The inner ring-road in front of the Administration Building should be retained beyond the east and west ends of the building to the extent feasible to maintain the historic context of the tree-lined circulation pathways.

  If this site is selected, a cultural landscape report should be prepared to document the remaining historic landscape features associated with the Administration Building, consistent with the recommendations in *Preservation Brief 36: Protecting Cultural Landscapes*. A Cultural Landscape Report (CLR) documents the history, significance and treatment of a cultural landscape and evaluates its history and integrity, including any changes to its geographical context, features, materials, and use. CLRs are often prepared when a change is proposed, when they serve as a useful planning tool.

  Overhead utility wires should not be introduced to the campus. If new underground service is introduced, care should be taken to avoid root systems of existing trees. Within the historic site of the Administration Building, ground surface should be restored to existing conditions following installation of any new underground utilities.

- Disuse of Administration Building – As there is no proposed adaptive use for the historic Administration Building within the new Westside prison reception center program, it is critical that the historic building be properly preserved in the interim. A preservation plan, developed by a qualified project team, should include a cyclical maintenance program to be adopted by the DOC. The plan should include recommendations for ongoing and future maintenance of the historic landscape features, which consist of entry pylons, tree-lined roads, and historic streetlights. In the event that the Administration Building would no longer have appropriate heat, ventilation, and cyclical maintenance, it should be mothballed according to the recommendations laid out in *Preservation Brief 31: Mothballing Historic Buildings*.

  In the current proposal, no programmatic use has been identified for the Administration Building. In the future, consideration should be given to functions that may work within the building (such as staff offices and training, etc.).

3.12.5 Significant Unavoidable Adverse Impacts

With implementation of identified mitigation measures, no significant unavoidable adverse impacts to historic resources would be anticipated.

3.13 TRANSPORTATION

This section presents a summary of the transportation impact analysis for the three alternative sites. The transportation issues addressed reflect the project's potential operational and safety impacts to the roadway system, transit facilities, non-motorized facilities, and parking. Detailed analysis is provided in **Appendix H**.[1]

3.13.1 Affected Environment

This section discusses existing and future transportation conditions without the *Westside Prison Reception Center* project at the three alternative sites.

Bremerton Site

Study Area

Based on project traffic generation and distribution estimates, the City of Bremerton and the Washington State Department of Transportation (WSDOT) requested analyses at the following intersections:

- SW Lake Flora Road / Site Access Driveway – stop-controlled on driveway.
- SW Lake Flora Road / State Route (SR) 3 – Lake Flora Road approach is stop-controlled.
- SW Lake Flora Road / JM Dickinson Road – SW Lake Flora Road (eastbound approach) is currently stop-sign controlled; future roundabout control.

Transportation Network

Characteristics of the key roadways and intersections in the Bremerton Site vicinity are summarized in **Table 3.13-1**.

The following roadway improvement projects are planned to be complete by 2016, and thus were assumed for all future conditions analyses:

- Addition of a northbound right-turn lane on SR 3 at the SW Lake Flora Road intersection.
- Reconfiguration of the existing stop-sign controlled SW Lake Flora Road/JM Dickenson Road intersection into a roundabout.

[1] Heffron Transportation Inc. August 2011

Table 3.13-1
STUDY AREA ROADWAY CHARACTERISTICS – BREMERTON SITE

Characteristic	SW Lake Flora Road	SR 3
Street Classification	Minor Arterial [1]	State Route – Highway of Statewide Significance [2]
Speed Limit (mph)	50 in site vicinity	40-55
Lanes	2	2-3 lanes, with turn-pockets at most intersections
Street-Edge Condition	Gravel shoulders on both sides near site; paved shoulders southeast of site	Paved shoulders on both sides
Bike Lanes	None existing – future bike lanes included in Kitsap County Bicycle Facilities Plan [3]	None existing – future bike lanes included in Kitsap County Bicycle Facilities Plan [3]
Parking	None	None
Lane Restrictions	None	None
Transit Stops	None	None
Traffic Control & Signal Locations	Stop sign at SR 3 Stop sign at JM Dickenson	Traffic signal at Imperial Way SW

Source: Heffron Transportation, August 2011.

1. Kitsap County Comprehensive Plan DEIS, 2006.
2. Highways of Statewide Significance (HSS), designated under RCW 47.06.140, include interstate highways and other principal arterials that are needed to connect major communities in the state. http://www.wsdot.wa.gov/planning/HSS/Default.htm
3. The Kitsap County Bicycle Facilities Plan identifies a high-priority future 5-mile bike lane project beginning on SW Lake Flora Road at Sunnyslope Road SW, continuing on Glenwood Road SW to SW Lider Road, and continuing on SW Lider Road to Bethel-Burley Road. Bike lanes or a separated trail have been identified for SW Lake Flora Road west of Sunnyslope Road and SR 3 to the Mason County line as a low priority project. Neither project is currently included in any capital improvement programs.

Traffic Volumes

SR 3 carries an average of 16,200 vehicles per day. The peak northbound flows (toward Bremerton) occur in the morning and peak southbound flows (away from Bremerton) occur in the afternoon. SW Lake Flora Road carries an average of 2,430 vehicles per day. Peak flows in both the eastbound and westbound directions occur in the afternoon. Methods to project future traffic volumes were coordinated with City of Bremerton transportation review staff. Forecasted traffic volumes for 2016 without the project were estimated by applying a compound annual growth rate of 2.0% to the existing traffic volumes to account for regional background growth. Additional detail about existing and projected future traffic volumes is provided in the **Appendix H**.

Intersection Operations

Level of service (LOS) analyses were performed for the off-site study area intersections. Level of service is a qualitative measure used to characterize traffic operating conditions. Six letter designations, “A” through “F,” are used to define level of service. LOS A is the best and represents good traffic operations with little or no delay to motorists. LOS F is the worst and indicates poor traffic operations with long delays. Additional detail about level of service methodology and thresholds is provided in the **Appendix H**.

Table 3.13-2 summarizes existing and projected 2016 without-project levels of service for the intersections within the Bremerton study area. As shown, all movements at both intersections currently operate at LOS C or better. Growth in background traffic could add small amounts of delay to some movements by 2016, but all are expected to remain at LOS C or better.

Table 3.13-2
LEVEL OF SERVICE SUMMARY – BACKGROUND CONDITIONS – BREMERTON SITE

	AM Peak Hour Conditions				PM Peak Hour Conditions			
	Existing (2011)		2016 Without-Project		Existing (2011)		2016 Without-Project	
Stop-sign Controlled Intersections	LOS [1]	Delay [2]	LOS	Delay	LOS	Delay	LOS	Delay
SW Lake Flora Road / SR 3 (overall)	A	1.6	A	1.7	A	1.4	A	1.6
Turns from Lake Flora Road	C	18.4	C	19.9	C	19.7	C	22.4
Southbound Left Turns to Lake Flora Road	B	10.4	B	10.9	A	8.9	A	9.1
SW Lake Flora Rd / JM Dickenson Rd (overall)	A	5.7	n/a [3]		A	5.9	n/a [3]	
Eastbound Turns from Lake Flora Road	B	12.1			B	12.5		
Northbound Left Turns to Lake Flora Road	A	4.7			A	3.7		
Roundabout Controlled Intersection	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
SW Lake Flora Rd / JM Dickenson Rd (overall)	n/a [3]		A	5.3	n/a [3]		A	6.4
Eastbound approach on Lake Flora Road			A	4.4			A	7.2
Northbound approach on JM Dickenson Rd			A	6.1			A	5.2
Southbound approach on Lake Flora Road			A	4.8			A	6.1

Source: Heffron Transportation, August 2011.

1. LOS = Level of service.
2. Delay = Average seconds of delay per vehicle.
3. n/a – Not applicable. Intersection is currently stop-sign controlled, but will be reconfigured as a roundabout in late 2011.

Review of traffic volume signal warrants published in the *Manual on Uniform Traffic Control Devises* (*MUTCD*[2]) indicate that the SW Lake Flora Road/SR 3 intersection could meet minimum volume warrants for a traffic signal sometime before 2016 without the proposed reception center. However, WSDOT staff has reviewed the location for safety concerns and have determined that a traffic signal is not currently desirable at this location.[3] However, a signal or a roundabout could be considered at a future date if needed. Any changes to traffic control for the intersection would also be influenced by traffic safety conditions and collision experience.

Traffic Safety

Collision data at the study area intersections were obtained from WSDOT for the most recent three-year period from January 1, 2008 to December 31, 2010. At the SW Lake Flora Road/JM Dickenson Road intersection, there were a total of 11 collisions. Of these, 9 involved a single-car striking an object, or leaving the roadway and entering a ditch. Contributing causes ranged from disregarding a stop sign (6 collisions), exceeding safe speed (3 collisions), improper turn (1 collision), and driving under the influence of alcohol (1 collision). Eight of the collisions resulted in no injury; three listed an injury or possible injury. As described previously, Kitsap County is

[2] US Department of Transportation Federal Highway Administration, *MUTCD*, December 2009.
[3] Email communication, Dale Severson, P.E. Development Services Engineer, WSDOT Olympic Region, 8/18/2011.

currently reconfiguring the intersection to operate as a roundabout. This project was initiated to address the safety concern and relatively high collision rate.

At the SW Lake Flora Road/SR 3 intersection, there were a total of 7 collisions; however, one was not related to the intersection and involved a driver that had apparently fallen asleep and struck a mailbox. Of the remaining six collisions, one involved a driver exceeding reasonable speed, one operating defective equipment, and two not granting right-of-way to the other vehicle. Three of the seven collisions resulted in no injury; four collisions were listed as possible injuries. WSDOT has identified a Collision Analysis Location (CAL) on SR 3 between Mile Post (MP) 28.78 and MP 29.30. According to WSDOT staff,[4] most of the collisions for this CAL are attributed to the SW Lake Flora Road intersection. In response, WSDOT has funded a project (scheduled for preliminary engineering in August 2011 and construction in July 2013) that would provide a northbound right-turn lane on SR 3 and would improve the center acceleration lane for turns from SW Lake Flora Road to southbound SR 3.

Transit

Transit service closest to the Bremerton Site is provided by Mason County Transit. The closest transit stop is located at Bill Hunter Park in Belfair, approximately 2 miles from the site. **Table 3.13-3** summarizes fixed-route bus service provided to and from this stop. No future planned transit improvements have been identified to occur in the site vicinity by 2016.

Table 3.13-3
EXISTING TRANSIT SERVICE SUMMARY – BREMERTON SITE

Route	Service Area	Stop Distance from Site (miles)[1]	Approximate Service Hours	Headways (time between buses)
1	Belfair, Allyn, Grapeview, Shelton	2	6:30 A.M. – 8:10 P.M.	65 – 305 minutes
2	Belfair, Union, Shelton	2	7:55 A.M. – 4:30 P.M.	145 – 220 minutes
3	Belfair, Bremerton – connects to Kitsap Transit and Washington State Ferry	2	5:30 A.M. – 7:10 P.M.	55 – 230 minutes
4	Local Belfair service	2	7:10 A.M. – 5:10 P.M.	50 – 60 minutes

Source: Mason County Transportation Authority, Fixed Route Schedules and Route Maps. July 2011. http://www.masontransit.org/tservices/schedules.html

1. All routes accessed from Bill Hunter Park, located about 2 miles from the site.

Non-Motorized Facilities

No sidewalks or dedicated bicycle facilities are provided on SW Lake Flora Road or on SR 3 in the vicinity of the site. However, SR 3 has shoulders that accommodate some non-motorized travel. About two-thirds of SW Lake Flora Road between SR 3 and JM Dickenson Road has paved asphalt shoulders on both sides that also could accommodate non-motorized travel. However, approximately one-third (immediately southeast of SR 3) has gravel shoulders that could accommodate pedestrians, but are not suited for bicyclists.

[4] Email communication, Dale Severson, P.E. Development Services Engineer, WSDOT Olympic Region, 8/11/2011.

Kitsap County has identified SW Lake Flora Road as Bike Route #20 in its countywide bike route map.[5] No future planned non-motorized improvements have been identified to occur in the site vicinity by 2016.

Parking

No on-street parking is provided on SW Lake Flora Road or on SR 3 in the vicinity of the site. Parking for existing development in the area is generally provided off-street.

Mason County Site

Study Area

Based on project traffic generation and distribution estimates, Mason County and WSDOT requested analyses at the following intersections:

- SR 102 (W Dayton Airport Road) / Site Access Driveway – stop-controlled on driveway
- SR 102 (W Dayton Airport Road) / US Highway (US) 101 – SR 102 approach is stop-controlled
- SR 102 (W Dayton Airport Road) / W Eells Hill Road (PM peak only) – W Eells Hill Road approach is stop-controlled

Transportation Network

Characteristics of the key roadways and intersections in the Mason County Site vicinity are summarized in **Table 3.13-4**. No future roadway improvement projects were identified in the study area through 2016.

[5] Kitsap County, Department of Public Works, Transportation Planning, January 10, 2005.

Table 3.13-4
STUDY AREA ROADWAY CHARACTERISTICS – MASON COUNTY SITE

Characteristic	SR 102 (W Dayton Airport Road)	US 101
Street Classification [1]	Minor Collector west of site; Local Access east of site	State Route – Highway of Statewide Significance [2]
Speed Limit (mph)	45	45
Lanes	2	2-3
Street-Edge Condition	Gravel and grass shoulder of varying width on both sides	Paved shoulder of varying width on both sides
Bike Lanes	None	None
Parking	None	None
Lane Restrictions	None	None
Transit Stops	None	None
Traffic Control & Signal Locations	Stop sign at US 101	No stop signs or traffic signals on the roadway; limited access north of Shelton; full-access control from Shelton to I-5

Source: Heffron Transportation, August 2011.

1. Mason County Comprehensive Plan, Transportation Element, November 8, 2005.
2. Highways of Statewide Significance (HSS), designated under RCW 47.06.140, include interstate highways and other principal arterials that are needed to connect major communities in the state. http://www.wsdot.wa.gov/planning/HSS/Default.htm

Traffic Volumes

SR 102 carries an average of 2,170 vehicles per day just west of the Washington Corrections Center (WCC) and 4,340 vehicles per day just west of US 101. Methods to project future traffic volumes were coordinated with Mason County transportation review staff. Forecasted traffic volumes for 2016 without the project were estimated by applying a compound annual growth rate of 2.0% to the existing traffic volumes to account for regional background growth. Additional detail about existing and projected future traffic volumes is provided in the **Appendix H**.

Intersection Operations

Table 3.13-5 summarizes existing and projected 2016 without-project levels of service of intersections within the Mason County study area. As shown, all movements at both study area intersections currently operate at LOS B or better. In 2016, all movements are projected to operate at LOS C or better. The increase in traffic assumed results from background growth and the Ridge Motorsports Park would slightly increase delay and change the level of service for turns from SR 102 to US 101.

Table 3.13-5
LEVEL OF SERVICE SUMMARY – BACKGROUND CONDITIONS – MASON COUNTY SITE

Unsignalized Intersections	AM Peak Hour Conditions				PM Peak Hour Conditions			
	Existing (2011)		2016 Without-Project		Existing (2011)		2016 Without-Project	
	LOS [1]	Delay [2]	LOS	Delay	LOS	Delay	LOS	Delay
SR 102 / US 101 (overall)	A	4.6	A	5.5	A	4.1	A	4.9
Turns from SR 102 to US 101	B	13.1	C	15.5	B	13.0	C	15.1
Northbound Left Turns from US 101	A	4.8	A	9.1	A	8.2	A	8.4
SR 102 / W Eells Hill Road (overall)	n/a [3]				A	0.7	A	1.7
Turns from Eells Hill Rd to SR 102					A	9.6	B	10.2
Left Turns from SR 102 to Eells Hill Rd					A	0.0	A	0.3

Source: Heffron Transportation, August 2011.

1. LOS = Level of service.
2. Delay = Average seconds of delay per vehicle.
3. Analyses were not required for AM peak hour conditions.

Review of traffic volume signal warrants published in the *MUTCD* indicate that the SR 102/US 101 intersection could meet minimum volume warrants for a traffic signal sometime before 2016 without the proposed reception center. However, WSDOT staff has reviewed the location for safety concerns and have determined that a traffic signal is not desirable at this location due to the character and location of the intersection. If WSDOT elects to signalize the intersection it would likely operate at LOS A. Any changes to traffic control for the intersection would also be influenced by traffic safety conditions and collision experience.

Traffic Safety

Collision data at the study area intersections were obtained from WSDOT for the most recent three-year period, which spanned January 1, 2008 to December 31, 2010. No collisions were recorded during this period at the SR 102/W Eells Hill Road intersection, and three collisions were recorded at the SR 101/SR 102 intersection. One of the collisions involved a driver under the influence of drugs, the other two (rear-end collisions) involved drivers following too closely—one on US 101 and one on SR 102. These data do not indicate any unusual safety conditions. WSDOT also indicated that there are no Collision Analysis Locations (CALs), Collision Analysis Corridors (CACs), or Intersection Analysis Locations (IALs) on SR 102 or on US 101 in the vicinity of its intersection with SR 102.[6]

Transit

Transit service closest to the Mason County Site is provided by Mason County Transit. **Table 3.13-6** summarizes the eight fixed bus routes that serve Shelton. Through an agreement between Mason County Transit and the DOC, a fixed route bus also diverts from US 101 to serve the existing WCC at approximately 10:00 A.M. each weekday. Mason County Transit

[6] Email communication, Dale Severson, P.E. Development Services Engineer, WSDOT Olympic Region, 8/11/2011.

provides door-to-door Dial-A-Ride service to the general public that is available on a first-come, first-served basis.[7]

The closest published transit stop to the project site is located at Airport Grocery on E Shelton Springs Road, approximately 2 miles away. However, Mason County Transit allows individuals to flag down buses anywhere along a fixed route where the bus can safely stop, so it is also possible that a bus could be flagged down on US 101 closer to the project site at locations where it would be safe for a bus to pull over. No future planned transit improvements have been identified to occur by 2016.

Table 3.13-6
EXISTING TRANSIT SERVICE SUMMARY – MASON COUNTY SITE

Route	Service Area	Stop Distance from Site (miles)	Approximate Service Hours	Headways (time between buses)
1	Belfair, Allyn, Grapeview, Shelton	(a)	6:30 A.M. – 8:10 P.M.	65 – 305 minutes
2	Belfair, Union, Shelton	(b,c)	7:55 A.M. – 4:30 P.M.	145 – 220 minutes
5	Local Shelton service	(a)	7:45 A.M. – 8:30 P.M.	60 minutes
6	Shelton, Olympia	(a)	5:45 A.M. – 8:40 P.M.	20 – 155 minutes
7	Local Shelton service	2(b,d)	7:40 A.M. – 8:30 P.M.	60 minutes
8	Shelton, Hoodsport, Liliwaup, Eldon, Brinnon	(b,c)	8:05 A.M. – 10:05 A.M. 2:00 P.M. – 4:05 P.M.	Two runs per day, one in the morning and one in afternoon
9	Local Shelton service	(a)	11:40 A.M. – 8:40 P.M.	120 – 240 minutes
10	Local Shelton service	(a)	12:50 P.M. – 4:50 P.M.	60 minutes

Source: Mason County Transportation Authority, Fixed Route Schedules and Route Maps. July 2011. http://www.masontransit.org/tservices/schedules.html

a. Individuals traveling to or from the project site may connect to this route via Route 2, 7, or 8.
b. Route travels along US 101 and currently can divert to the existing WCC under an agreement with the DOC.
c. May be flagged down from the stop at the Airport Grocery, which is the closest published stop to the project site.
d. Has scheduled stop at the Airport Grocery, which is the closest published stop to the project site.

Non-Motorized Facilities

No sidewalks or dedicated bicycle facilities are provided on SR 102 (W Dayton Airport Road) or US 101 in the vicinity of the site. There are unpaved shoulders along SR 102 that could accommodate pedestrian traffic, but are not suitable for bicycle travel. US 101 has paved shoulders that could potentially accommodate non-motorized travel.

The *Mason County Regional Trails Plan*[8] identifies SR 102 between US 101 and Shelton-Matlock Road as a "short-term priority bikeway," for which the County has defined an objective of building a bikeway within 1 to 5 years of the year that the plan was adopted (2008). The plan

[7] Kathy Cook, Administrative Services Manager and Clerk to the Board, Mason County Transit, phone conversation with Jennifer Barnes, Heffron Transportation, regarding information about transit service provided in addition to published fixed route service, August 10, 2011.
[8] Mason County Regional Trails Plan, prepared by the Mason County Departments of Parks and Trails, Community Development, Public Works, and Regional Trails Committee, March 2008.

indicates that instead of specific improvement recommendations for particular roads, that standard planning and design procedures should be utilized in conjunction with road improvement projects to determine whether added improvements for bicycling are appropriate for a given situation. No funded non-motorized improvements have been identified to occur in the site vicinity by 2016.

Parking

No on-street parking is provided on SR 102 (W Dayton Airport Road) in the vicinity of the site. Parking for existing development in the area is provided off-street.

Thurston County Site

Study Area

Based on project traffic generation and distribution estimates, Thurston County and WSDOT requested analyses at the following intersections:

- Old Highway 9 SW / Site Access Driveways – stop-controlled at driveways
- Old Highway 9 SW / Carper Road SW – Carper Road SW approach is stop-controlled
- Old Highway 9 SW / US 12 – Old Highway 9 SW approach is stop-controlled
- Old Highway 99 SW / US 12 / Elderberry Street SW – signalized
- Old Highway 9 SW / Old Highway 99 SW – Old Highway 9 SW approach is stop-controlled

Transportation Network

Characteristics of the key roadways and intersections in the Thurston County Site vicinity are summarized in **Table 3.13-7**.

One major transportation improvement project is planned to be complete by 2016, and thus was assumed for all future conditions analyses. WSDOT is currently replacing the I-5/US 12 interchange to improve mobility and safety. The interchange configuration will be modified and both loop ramps will be eliminated. Traffic signals will be installed at both ramp intersections resulting in a typical “diamond” interchange configuration. On the east side of the interchange, the two existing exits from northbound I-5 will be consolidated to one exit point. The alignment of the US 12 roadway across the interchange will be shifted to the north. The US 12 intersection with Old Highway 99/Elderberry Road will be reconfigured to provide dual westbound-to-southbound left-turn pockets. The segment of US 12 east of Old Highway 99/Elderberry Road will be widened to six lanes. A conceptual drawing of the project is provided in **Appendix H**.

Table 3.13-7
STUDY AREA ROADWAY CHARACTERISTICS – THURSTON COUNTY

Characteristic	Old Hwy 9 SW	Old Hwy 99 SW	US 12	Elderberry St SW	Carper Rd SW
Street Classification [1]	Major Collector	Arterial	State Route – Highway of Statewide Significance [2]	Arterial, south of 196th St SW; Major Collector, north of 196th St SW	Local Access
Speed Limit (mph)	50	40	55	35 [3]	30
Lanes	2	3-4	2-3	2-3	2
Street-Edge Condition	No curb, gutter, sidewalk or shoulder	Shoulder on both sides; some intermittent sidewalk fronting development	Shoulder on both sides	Shoulder on both sides	No curb, gutter, sidewalk or shoulder
Bike Lanes	None	None [4]	None [4]	None	None
Parking	None	None	None	None	None
Lane Restrictions	None	None	None	None	None
Transit Stops	None	None	None	None	None
Traffic Control & Signal Locations	Traffic signal at Old Hwy 99 SW; stop sign at US 12	Traffic signal at US 12	Traffic signal at Old Hwy 99/ Elderberry and I-5 NB ramps	Traffic signal at US 12	Stop sign at Old Hwy 9 SW

Source: Heffron Transportation, August 2011.

1. Grand Mound Subarea Plan for the Grand Mound Urban Growth Area, Map 7, Thurston County Development Services, July 1, 1996.
2. Highways of Statewide Significance (HSS), designated under RCW 47.06.140, include interstate highways and other principal arterials that are needed to connect major communities in the state. http://www.wsdot.wa.gov/planning/HSS/Default.htm
3. Speed limit not posted in this segment and not listed on the County's Speed Limit Schedule (June 8, 2010). Assumed to be 35 mph similar to northern segment.
4. Thurston Regional Planning Council (TRPC), 2011. Although no bicycle facilities are present, the TRPC County Bike Map identifies Old Highway 99 SW and US 12 as having wide enough shoulders to accommodate bicycle travel. http://www.trpcmaps.org/webmaps/bikemap/gbikemap.htm

Traffic Volumes

Based on seven-day machine traffic counts conducted in the study area, Old Highway 9 carries an average of 3,630 vehicles per day. The peak flows in both the eastbound and westbound directions occur in the afternoon. Methods to project future traffic volumes were coordinated with Thurston County transportation review staff and Thurston Regional Planning Council staff. Forecasted traffic volumes for 2016 without the project were estimated by applying a compound annual growth rate of 2.2% to the existing traffic volumes to account for regional traffic growth; in addition, traffic estimates prepared for two future developments were added to the 2016 background traffic forecasts. Additional detail about existing and projected future traffic volumes is provided in the **Appendix H**.

Intersection Operations

Table 3.13-8 summarizes existing and projected 2016 without-project levels of service of intersections within the Thurston County study area. As shown, the signalized Old Highway

99/US 12/Elderberry Street SW intersection currently operates at LOS D during both the morning and afternoon peak hours. The planned improvements, currently under construction as part of the I-5/US 12 interchange replacement, would provide additional capacity to accommodate growth in background traffic and other planned developments. The intersection is expected to continue operating at LOS D in 2016 during the morning and afternoon peak hours.

Table 3.13-8
LEVEL OF SERVICE SUMMARY – BACKGROUND CONDITIONS – THURSTON COUNTY SITE

	AM Peak Hour Conditions				PM Peak Hour Conditions			
	Existing (2011)		2016 Without-Project		Existing (2011)		2016 Without-Project	
Signalized Intersection	LOS [1]	Delay [2]	LOS	Delay	LOS	Delay	LOS	Delay
Old Hwy 99 SW / US 12 / Elderberry Street SW	D	40.8	D	41.5	D	38.9	D	39.8
Unsignalized Intersections	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
Old Hwy 9 SW / Carper Road SW (overall)	A	4.4	A	4.7	A	2.4	A	2.5
WB Lefts from Old Hwy 9 to Carper Rd	A	3.8	A	3.8	A	0.6	A	0.7
NB turns from Carper Rd to Old Hwy 9	B	14.3	C	15.6	B	10.5	B	10.8
Old Hwy 9 SW / US 12 (overall)	A	3.3	A	3.7	A	2.5	A	2.9
WB Lefts from US 12 to Old Hwy 9	A	9.3	A	9.8	A	8.7	A	9.1
NB turns from Old Hwy 9 to US 12	B	14.4	C	16.9	C	15.9	C	19.2
Old Hwy 9 SW / Old Hwy 99 SW (overall)	A	3.9	A	3.9	A	3.4	A	3.7
EB Lefts from Old Hwy 9 to Old Hwy 99	B	14.6	B	16.2	D	30.2	E	41.4
EB Rights from Old Hwy 9 to Old Hwy 99	B	10.1	B	10.5	B	12.1	B	13.3
WB Turns from Private Dwy to Old Hwy 99	C	17.5	C	20.3	C	18.9	C	22.9
NB Left Turns from Old Hwy 99 to Old Hwy 9	A	7.9	A	8.0	A	8.6	A	9.0
SB Left Turns from Old Hwy 99 to Pvt. Dwy.	A	0.0	A	0.0	A	8.0	A	8.2

Source: Heffron Transportation, August 2011.

1. LOS = Level of service.
2. Delay = Average seconds of delay per vehicle.

All three unsignalized intersections are projected to operate at LOS A overall during morning and afternoon peak hours, averaging all movements. Nearly all movements at these unsignalized intersections would also operate at LOS C or better during peak hour. The one exception is the eastbound-to-northbound left turn from Old Highway 9 to Old Highway 99. This turn currently operates at LOS D in the afternoon and is projected to degrade to LOS E by 2016 due to growth in background traffic volumes. However, the combined eastbound approach (left- and right-turn movements) would continue to operate at LOS C.

Review of traffic volume signal warrants published in the *MUTCD* indicate that the Old Highway 9/US 12 intersection could meet minimum volume warrants for a traffic signal sometime before 2016 without the proposed reception center. However, WSDOT staff has reviewed the location for safety concerns and have determined that a traffic signal is not desirable at this location due to the character and location of the intersection.[9] If WSDOT elects to signalize the intersection it

[9] Email communication, Dale Severson, P.E. Development Services Engineer, WSDOT Olympic Region, 8/18/2011.

would likely operate at LOS A. Any changes to traffic control for the intersection would also be influenced by traffic safety conditions and collision experience.

Traffic Safety

Collision data at the study area intersections were obtained from WSDOT for the most recent three-year period available, which spanned January 1, 2008 to December 31, 2010. During this period, 19 collisions were recorded Old Highway 99/US 12/Elderberry Road SW intersection. Of these, three were listed as "not intersection related." Most were rear-end collisions with contributing causes listed as exceeding reasonable speed, following too closely, or inattention. One of the angle collisions involved a driver under the influence of alcohol. The number and rate of collisions at this intersection are not unusual for a high-volume signalized intersection. In addition, the collision rate is relatively low (0.62/million entering vehicles) and reflects the volume of traffic the intersection serves on a daily basis.

Four collisions were recorded at the Old Highway 9/US 12 intersection. WSDOT indicated that this intersection (MP 44.66) is not within a CAL, CAC, or IAL. However, there was an entering-at-angle collision that resulted in a fatality at this intersection in May 2010. WSDOT staff also noted that between Oakville and Grand Mound, there is a CAC (MP 35.30 to MP 40.30) and two IALs (MP 39.85 Moon Road and MP 45.20 Pecan Street). In the past five years (2006 to 2010), there have been four fatal collisions that were intersection related on US 12 between Grand Mound and Oakville.[10]

Transit

Transit service closest to the Thurston County Site is provided by Twin Transit. The closest transit stop is located at the Great Wolf Lodge in Grand Mound, approximately 1 mile from the site. This stop directly serves Route 41, which provides connections to five other routes in Centralia and Chehalis. **Table 3.13-9** summarizes the six fixed bus routes. In addition to providing local service in Centralia and Chehalis, connection is provided to the Greyhound bus service and Amtrak rail service in Centralia. No future planned transit improvements have been identified to occur by 2016.

[10] Email communication, Dale Severson, P.E. Development Services Engineer, WSDOT Olympic Region, 8/11/2011.

Table 3.13-9
EXISTING TRANSIT SERVICE SUMMARY – THURSTON COUNTY SITE

Route	Service Area	Stop Distance from Site (miles)	Approximate Service Hours	Headways (time between buses)
12	Chehalis and Chehalis Port	[a]	5:00 A.M. – 6:00 P.M.	60 minutes
21	Centralia north and south	[a]	6:00 A.M. – 7:30 P.M.	60 minutes
22	West Centralia, Port of Centralia	[a]	6:00 A.M. – 7:30 P.M.	60 minutes
30	Centralia, Chehalis	[a]	6:00 A.M. – 7:30 P.M.	60 minutes
41	Grand Mound, Centralia	1	10:30 A.M. – 5:30 P.M.	60 minutes
42	Centralia, Chehalis	[a]	10:00 A.M. – 5:00 P.M.	60 minutes

Source: Twin Transit System Map and Schedule, September 2010.
a. Connect to route via Route 41.

Non-Motorized Facilities

No sidewalks, shoulders, or dedicated bicycle facilities are provided on Old Highway 9 SW in the vicinity of the site; while pedestrians could potentially walk along the unpaved right-of-way adjacent to the road, it is not suited for bicycle travel. Although no designated bicycle facilities are present, the *TRPC County Bike Map* identifies Old Highway 99 SW and US 12 as having paved shoulders wider than four feet.[11] No future planned non-motorized improvements have been identified to occur in the site vicinity by 2016.

Parking

No on-street parking is provided on Old Highway 9 SW in the vicinity of the site. Parking for existing development in the area is provided off-street.

3.13.2 Impacts

This section describes the conditions that are expected to exist at each of the alternative sites with the construction and operation of the proposed *Westside Prison Reception Center*.

Bremerton Site

Roadway Network

Under this alternative, the project proposes to construct one site access driveway on SW Lake Flora Road; no off-site road modifications are proposed.

Traffic Volumes

Construction of the reception center on the Bremerton Site would affect traffic volumes in the transportation study area. Because the site is currently undeveloped, there are no existing trips generated at the site that would be removed if the project is built at this location. Detailed

[11] Thurston County Planning Council, 2011. http://www.trpcmaps.org/webmaps/bikemap/gbikemap.htm

discussion of methods applied to estimate trip generation, distribution and assignment is presented in **Appendix H**.

Trip Generation

Table 3.13-10 summarizes vehicle trips that are projected to result from the proposed reception center if it is located at the Bremerton Site. As shown, the project is expected to result in 994 daily vehicle trips, with 149 trips occurring in the AM peak hour (6:30 to 7:30 A.M.) and 149 trips occurring in the PM peak hour (5:00 to 6:00 P.M.). Because the majority of peak hour trips would be employee-generated, most are inbound during the AM peak hour and outbound during the PM peak hour.

Table 3.13-10
NET INCREASE IN TRIP GENERATION – BREMERTON SITE

Trip Type	Daily Trips	AM Peak Hour Trips [1]			PM Peak Hour Trips [2]		
		In	Out	Total	In	Out	Total
Employees [3]	830	140	0	140	0	140	140
Transports	24	1	2	3	0	0	0
Releases	10	1	0	1	0	0	0
Visitors	60	0	0	0	0	0	0
Volunteers	20	1	0	1	6	1	7
Deliveries	20	1	1	2	0	0	0
Other	30	1	1	2	1	1	2
Total Trips	994	145	4	149	7	142	149

Source: Heffron Transportation, Inc., July 2011.

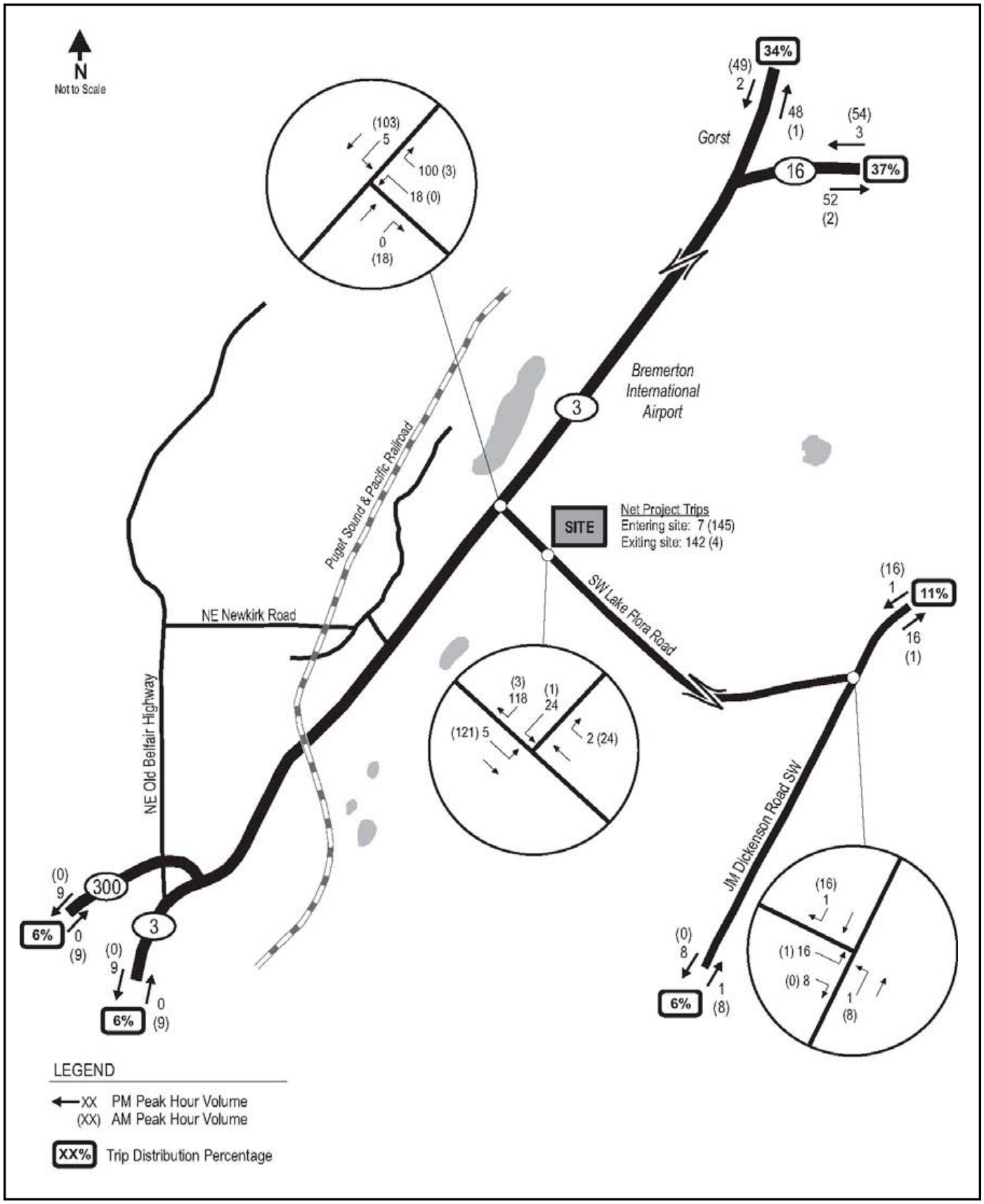
1. AM peak hour trips are estimated to occur between 6:30 and 7:30 A.M.
2. PM peak hour trips are estimated to occur between 5:00 and 6:00 P.M.
3. AM and PM peak hour employee trips would be generated by non-custody administrative and health services staff members who work from 7:00 A.M. to 5:00 P.M. The facility would also employ custody and nursing staff who work 24/7 in three shifts. Employee-generated trips that would occur at shift changes would occur outside of the AM and PM peak hours.

Trip Distribution

The distribution of employee trips throughout the region was estimated using zip code data for employees at the existing WCC in Mason County. For the Bremerton Site, the employee distribution was estimated by comparing the relative distances and population densities with the WCC data, and adjusting proportionally. Approximately 50% of the total trips are expected to occur within 10 miles of the site and approximately 90% of total trips expected to occur within 50 miles of the site.

Trip Assignment

The AM and PM peak hour project trips were assigned to roadways within the study area based on the estimated trip distribution patterns. The AM and PM peak hour project trip assignments for the Bremerton alternative site are shown on **Figure 3.13-1**.



Source: Heffron Transportation, Inc., 2011

Figure 3.13-1
Bremerton Site - Project Generated Trips

With-Project Traffic Volumes

AM and PM project trips were added to the 2016 without-project traffic volumes to estimate future conditions with the proposed facility. The 2016 with-project AM and PM peak hour volumes are shown on **Figure 3.13-2**.

Traffic Volume Impacts

Table 3.13-11 summarizes the projected traffic volume impacts at each of the study area intersections. As shown, at the SW Lake Flora Road/SR 3 intersection, the project is expected to contribute 8.8% of total entering traffic during the AM peak hour and 6.7% during the PM peak hour. Smaller percentages of project traffic are expected at the SW Lake Flora Road/JM Dickenson Road intersection where background traffic volumes are also comparatively low.

Table 3.13-11
PRISON RECEPTION CENTER 2016 TRAFFIC VOLUME IMPACTS – BREMERTON SITE

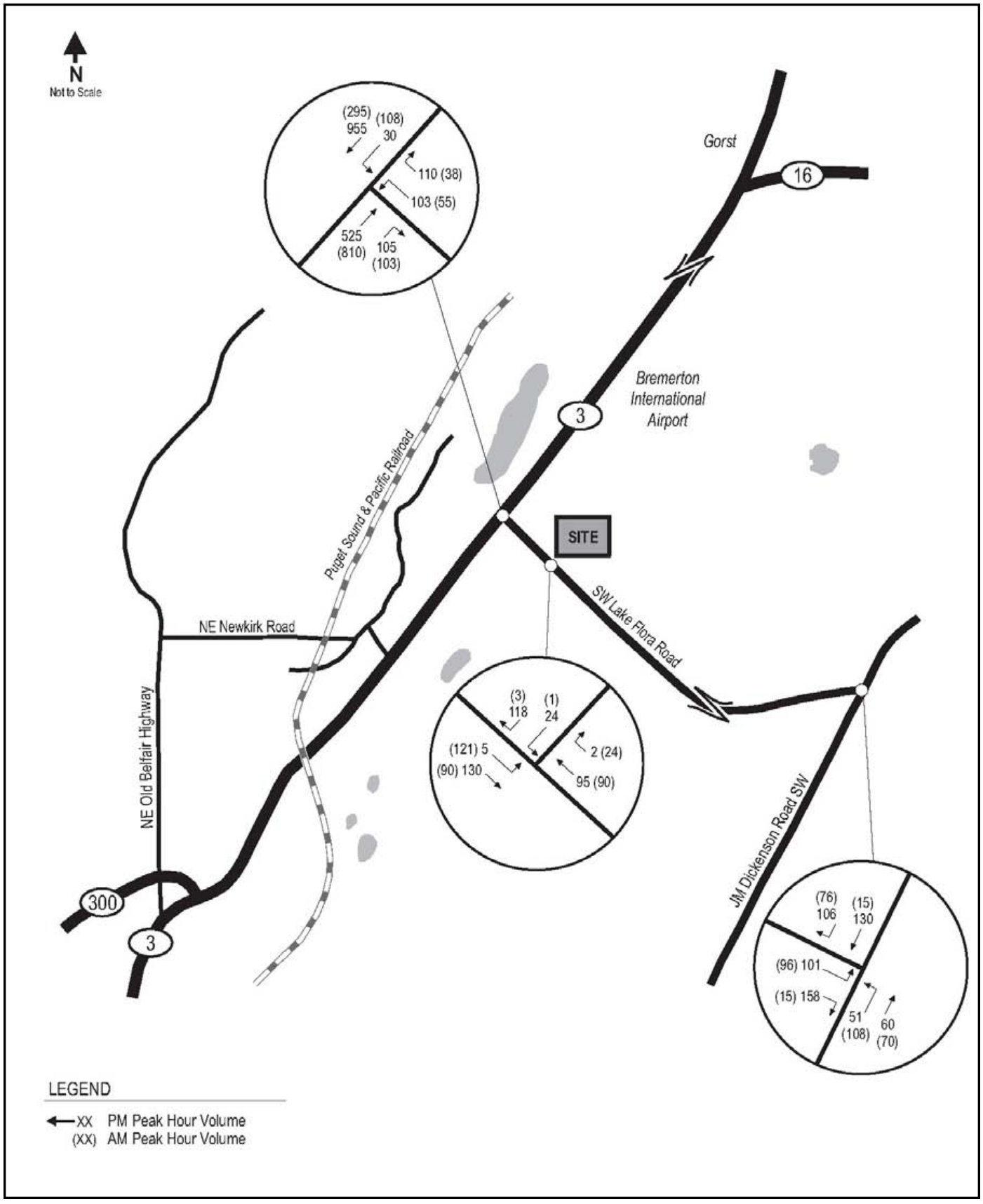
	AM Peak Hour			PM Peak Hour		
Intersection	Project [1]	Total Entering [2]	% Project [3]	Project	Total Entering	% Project
SW Lake Flora Road / SR 3	124	1,409	8.8%	123	1,828	6.7%
SW Lake Flora Rd / JM Dickenson Rd	25	380	6.6%	26	606	4.3%

Source: Heffron Transportation, Inc. August 2011.

1. Project = Number of project generated peak hour trips forecast to enter the intersection.
2. Total Entering = The total number peak hour trips forecast to enter the intersection.
3. % Project = Project's percentage of the total entering peak hour traffic at each intersection.

Intersection Operations

Table 3.13-12 summarizes expected 2016 with-project levels of service; 2016 without-project results are also shown for comparison. As shown, the project is expected to add a small amount of delay to several movements at both intersections. However, the additional delay would be small and all movements at both intersections are projected to remain operating at LOS C or better. In some cases, the project is forecast to reduce average delay for an intersection approach. This occurs when the project adds trips to a movement (such as a right-turn movement) that has lower delay than other movements, and decreases the average delay per vehicle for the approach.



Source: Heffron Transportation, Inc., 2011

Figure 3.13-2
Bremerton Site - 2016 With Project Traffic Volumes

Table 3.13-12
LEVEL OF SERVICE SUMMARY – 2016 WITH-PROJECT – BREMERTON SITE

	AM Peak Hour Conditions				PM Peak Hour Conditions			
	2016 Without-Project		2016 With-Project		2016 Without-Project		2016 With-Project	
Stop-sign Controlled Intersection	LOS [1]	Delay [2]	LOS	Delay	LOS	Delay	LOS	Delay
SW Lake Flora Road / SR 3 (overall)	A	1.7	A	2.6	A	1.6	A	2.9
Turns from Lake Flora Road	C	19.9	C	21.8	C	22.4	C	20.3
Southbound Left Turns to Lake Flora Road	B	10.9	B	12.5	A	9.1	A	9.1
Roundabout Controlled Intersection	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
SW Lake Flora Rd / JM Dickenson Rd [3] (overall)	A	5.3	A	5.5	A	6.4	A	6.7
Eastbound approach on Lake Flora Road	A	4.4	A	4.5	A	7.2	A	7.7
Northbound approach on JM Dickenson Rd	A	6.1	A	6.2	A	5.2	A	5.3
Southbound approach on Lake Flora Road	A	4.8	A	5.1	A	6.1	A	6.2

Source: Heffron Transportation, August 2011.

1. LOS = Level of service.
2. Delay = Average seconds of delay per vehicle.
3. Intersection is currently stop-sign controlled, but will be reconfigured as a roundabout in late 2011.

At the SW Lake Flora Road/SR 3 intersection, the largest estimated 95th-percentile queue was for left-turning vehicles from SW Lake Flora Road to SR 3 (projected to be 55 feet or about 3 vehicles) during the PM peak hour. All other estimated queues were less than this value. Based on the queuing analysis results, the existing and planned channelization would not require modifications to accommodate traffic from the proposed reception center.

VMT and Travel Time Analyses

Estimates of annual vehicle-miles traveled (VMT) were prepared for employees and transport trips, since these are the two largest generators of daily traffic. **Table 3.13-13** shows the estimated annual VMT, which are expected to range from about 5.88 million to about 6.85 million for the three site alternatives. The annual VMT for the Bremerton Site are projected to be about 6.33 million, in the middle of the three site alternatives. For transport trips, the three sites are expected to have relatively similar annual VMT estimates—ranging from a low of about 215,290 (Bremerton) to a high of 222,070 (Mason County). These estimates are similar because many of the transport trips are quite long and the variation among the three sites is somewhat modest compared to overall trip length.

Total annual vehicle travel time compares the total amount of time that drivers would spend in vehicles traveling to and from the site alternatives. The table shows annual passenger vehicle travel time is expected to range from about 140,670 (Thurston County) to about 166,050 (Bremerton) vehicle-hours. Additional discussion about methods applied to analyze VMT and travel time is provided in **Appendix H**.

Table 3.13-13
ANNUAL VMT AND VEHICLE TRAVEL TIME COMPARISON – ALL SITES

Measure (Trip Component)	Bremerton	Mason County	Thurston County
Annual Vehicle Miles Traveled (VMT)			
Employees	6,113,910	6,628,400	5,657,740
Transports	215,290	222,070	220,600
Total Annual VMT	*6,329,200*	*6,850,470*	*5,878,340*
Annual Vehicle Travel Time (veh-hours)			
Employees	161,960	158,330	136,550
Transports	4,090	4,150	4,120
Total Annual Vehicle Travel Time	*166,050*	*162,480*	*140,670*

Source: Heffron Transportation, Inc., August 2011.

Site Access and Internal Circulation

As described in **Chapter 2**, the Bremerton site plan reflects one site access driveway on SW Lake Flora Road, located approximately 1,275 feet southeast of the SR 3 intersection. Operational analysis of the access driveway was performed for AM and PM peak hour conditions. All movements at the site access are expected to operate at LOS B or better during the morning and evening peak hours.

The site access was also reviewed to determine if a left-turn pocket would be needed to serve trips entering the site from SW Lake Flora Road. Left-turn storage guidelines published in the WSDOT *Design Manual*[12] were reviewed with the projected 2016 with-project traffic volumes. Due to the high volume of left turns into the site expected to arrive from SR 3 during the AM peak hour and the high speed of traffic on SW Lake Flora Road, a left-turn pocket with 100 feet of storage would likely be needed for the site access driveway. With added buffer, taper and transition length, this could require widening SW Lake Flora Road for about 750 feet (450 feet to the northwest and 300 feet to the southeast).

Based on WSDOT design standards, the access driveway should be located so that it can provide a minimum of 700 feet of sight distance in both directions. SW Lake Flora Road has some vertical and horizontal curvature that can limit sight distance; however, the project site being considered appears to have adequate frontage such that the driveway could be located to ensure minimum sight distance is provided. More detailed discussion of the assessment of WSDOT guidelines for turn lanes and sight distance is provided in **Appendix H**.

On-site circulation is planned to occur from the access driveway with internal secondary connections to the bus yard, staff and public parking, and a vehicle service yard.

Traffic Safety

Under this alternative, the proposed reception center would have its access driveway on SW Lake Flora Road. New driveways create new conflict points on roadways and can have the potential for collisions. However, as described in the previous section, a center-left-turn pocket

[12] WSDOT Design Manual, July 2011.

is recommended for the access driveway. In addition, the driveway would be required to provide minimum intersection sight distance (700 feet in both directions). Therefore, there are no specific safety concerns regarding the proposed driveway.

One of the study area intersections evaluated for the Bremerton Site—SW Lake Flora Road/JM Dickenson Road—experienced a relatively high rate of collisions over the three-year analysis period from 2008 through 2010. However, as previously described, the intersection is currently being reconfigured as a roundabout. Roundabouts are generally recognized for reducing the frequency and severity of collisions. The reception center project would increase traffic volumes through this intersection and could contribute proportionally to future collision experience. Project traffic would represent about 2.5% of total entering future daily traffic at this location and it is not expected to result in a significant impact to safety conditions.

Project traffic is expected to represent less than 4% of total entering daily traffic at the SR 3/SW Lake Flora Road intersection. Most project traffic would be making right turns from SW Lake Flora Road to SR 3 or left turns from SR 3 to SW Lake Flora Road, and would have less exposure to conflicting movements. Therefore, no significant adverse transportation safety impacts are anticipated with the proposed reception center project at the Bremerton Site.

Transit

While it is possible that the proposed reception center project could generate some demand for transit, none is anticipated at this time since there is not an existing transit stop at or very near the proposed site location. As a result, the project is not expected to adversely impact transit service or facilities in the study area. It is possible that the DOC could work with a local transit provider, such as Mason County Transit or Kitsap Transit, to establish service for the facility. However, no such service is currently planned or funded.

Non-Motorized Facilities

While it is possible that the proposed reception center project could generate a few non-motorized trips, none are anticipated at this time. As a result, the project is not expected to adversely impact non-motorized facilities in the study area.

City of Bremerton staff has indicated the *Bremerton Municipal Code (BMC) Title 11* would require full street improvements and dedication of public right-of-way along the project site frontage. The code required frontage improvements are detailed in the "Functional Roadway Classification" table that is part of the *Bremerton Road Standards*.[13] For SW Lake Flora Road—a minor arterial—half-street improvements could consist of curb, gutter, and sidewalk, a 5-foot bike lane, a 6-foot planter strip, and a 12-foot travel lane. City staff has also noted that a subarea plan currently being developed (for the SKIA) will likely contain different standards for frontage requirements, allowing more flexibility for development. The new standards will have an emphasis on Low Impact Development (LID), and will be available for review in fall of 2011. City staff indicated that some form of pedestrian walkway will likely be required with either the existing standards (sidewalk) or the updated standards. With the required frontage improvements, non-motorized access in the site vicinity would be improved with the project.

[13] City of Bremerton Road Standards, Functional Roadway Classification, 10/22/2002.

Parking Demand and Supply

Table 3.13-14 summarizes the peak parking demand for each of the parking generators, which would be the same under all three site alternatives. The peak parking demand is expected to occur midday between 12:30 and 1:30 P.M. when all administrative staff are on site and there is an overlap of two custody-staff shifts. This would occur when custody staff working Shift 3 (expected to begin at 1:00 P.M.) arrive before custody staff working Shift 2 (expected to end at 1:10 P.M.) leave the site. During this time, the peak parking demand is projected to be 390 vehicles. This peak demand is expected to occur for less than an hour. Parking demand for the remainder of the day would range from about 65 vehicles overnight to about 315 vehicles during the early afternoon. Additional discussion about methods applied to analyze parking demand is provided in **Appendix H**.

Table 3.13-14
PARKING DEMAND SUMMARY – ALL ALTERNATIVE SITES

Parked Vehicle Generator	Peak Parking Demand	Time of Day Peak Would Occur
Employee vehicles	368	12:30 to 1:30 P.M.
Visitor/Volunteer vehicles	15	5:30 to 8:00 P.M.
Transport & fleet vehicles	12	3:00 to 3:30 P.M.
Cumulative parking demand [1]	390	12:30 to 1:30 P.M.

Source: Heffron Transportation, August 2011.

1. The cumulative peak parking demand represents the largest number of vehicles parked on site at any one time, and assumes that parking spaces can be shared among the users. Because the peak parking demands for each of the user types occur at different times of the day, the cumulative peak parking demand does not equal the sum of the individual peak parking demands.

As described in **Chapter 2**, the proposed reception center would construct about 400 parking spaces on site. This parking supply would be adequate to meet the projected peak parking demand. Therefore, no adverse parking impacts are anticipated.

Construction Traffic Impacts

Construction of the reception center at the Bremerton Site is expected to require earthwork that would involve cut and fill of approximately 320,000 cubic yards (cy) of material. However, this earthwork is expected to occur on-site (balancing the cut and fill amounts) and no off-site transport is expected.

Building materials (including concrete for foundations, asphalt for parking facilities, and structural elements) would be transported to the site regularly throughout the construction period. The number of deliveries each day would vary depending on the phase of construction. It is estimated that overall construction would require approximately 22 months.

Construction of the project would also require employees and equipment that would generate traffic to and from the site. Construction at the site would likely occur Monday through Friday. It is anticipated that construction workers would arrive at the construction site before the AM peak traffic period on local area streets and depart the site prior to the PM peak period; construction work shifts typically begin by 7:00 A.M. and end by 4:00 P.M., while the corresponding peak traffic periods typically occur slightly later. The number of workers at the project site at any one time would vary depending upon the nature and construction phase of the project. Based on

past experience with construction of other corrections facilities, the number of construction employees on site is estimated to range from a low of 5 workers (during early site work) to a peak of about 175 workers (during periods with many trades working within the buildings). The presence of a temporary construction work force would also generate demand for parking spaces around the project site. It is expected that construction employees would be able to park in on-site staging areas or in new parking lots constructed on site for the project as they become available.

The proposed project would likely generate a noticeable amount of construction-related traffic on surrounding roadways. Construction worker vehicles and trucks carrying materials to the site would be most noticeable on SW Lake Flora Road. The truck traffic is not expected to degrade operations of study area intersections during off-peak hours. A construction transportation management plan (CTMP) addressing site access, traffic control, hauling routes, construction employee parking, and pedestrian and bicycle control in the area would be prepared per City of Bremerton requirements. In addition, the City of Bremerton may require mitigation for construction vehicle damage to roadways in the site vicinity.

Mason County Site

Roadway Network

Under this alternative, the project proposes to construct one site access driveway on SR 102 (W Dayton Airport Road); no off-site road modifications are proposed.

Traffic Volumes

Construction of the reception center on the Mason County Site would affect traffic volumes in the transportation study area. Because the site is currently undeveloped, there are no existing trips generated at the site that would be removed if the project is built.

If reception center activities moved from the WCC to a new reception center located at the Mason County Site, the existing WCC would be backfilled with general-population offenders. No significant changes to existing traffic generated by the WCC would be expected with this change because the number of offenders, employees, and visitors would remain about the same as the existing condition. Detailed discussion of methods applied to estimate trip generation, distribution and assignment is presented in **Appendix H**, as well as detailed discussion of the anticipated changes at WCC with the proposed reception center.

Trip Generation

Table 3.13-15 summarizes vehicle trips that are projected to result from the proposed reception center if it is located at the Mason County Site. As shown, the project is expected to result in 994 daily vehicle trips, with 149 trips occurring in the AM peak hour (6:30 to 7:30 A.M.) and 149 trips occurring in the PM peak hour (5:00 to 6:00 P.M.). Because the majority of peak hour trips would be employee-generated, most are inbound during the AM peak hour and outbound during the PM peak hour.

Table 3.13-15
NET INCREASE IN TRIP GENERATION – MASON COUNTY SITE

Trip Type	Daily Trips	AM Peak Hour Trips [1]			PM Peak Hour Trips [2]		
		In	Out	Total	In	Out	Total
Employees [3]	830	140	0	140	0	140	140
Transports	24	1	2	3	0	0	0
Releases	10	1	0	1	0	0	0
Visitors	60	0	0	0	0	0	0
Volunteers	20	1	0	1	6	1	7
Deliveries	20	1	1	2	0	0	0
Other	30	1	1	2	1	1	2
Total Trips	994	145	4	149	7	142	149

Source: Heffron Transportation, Inc., July 2011.

1. AM peak hour trips are estimated to occur between 6:30 and 7:30 A.M.
2. PM peak hour trips are estimated to occur between 5:00 and 6:00 P.M.
3. AM and PM peak hour employee trips would be generated by non-custody administrative and health services staff members who work from 7:00 A.M. to 5:00 P.M. The facility would also employ custody and nursing staff who work 24/7 in three shifts. Employee-generated trips that would occur at shift changes would occur outside of the AM and PM peak hours.

Trip Distribution

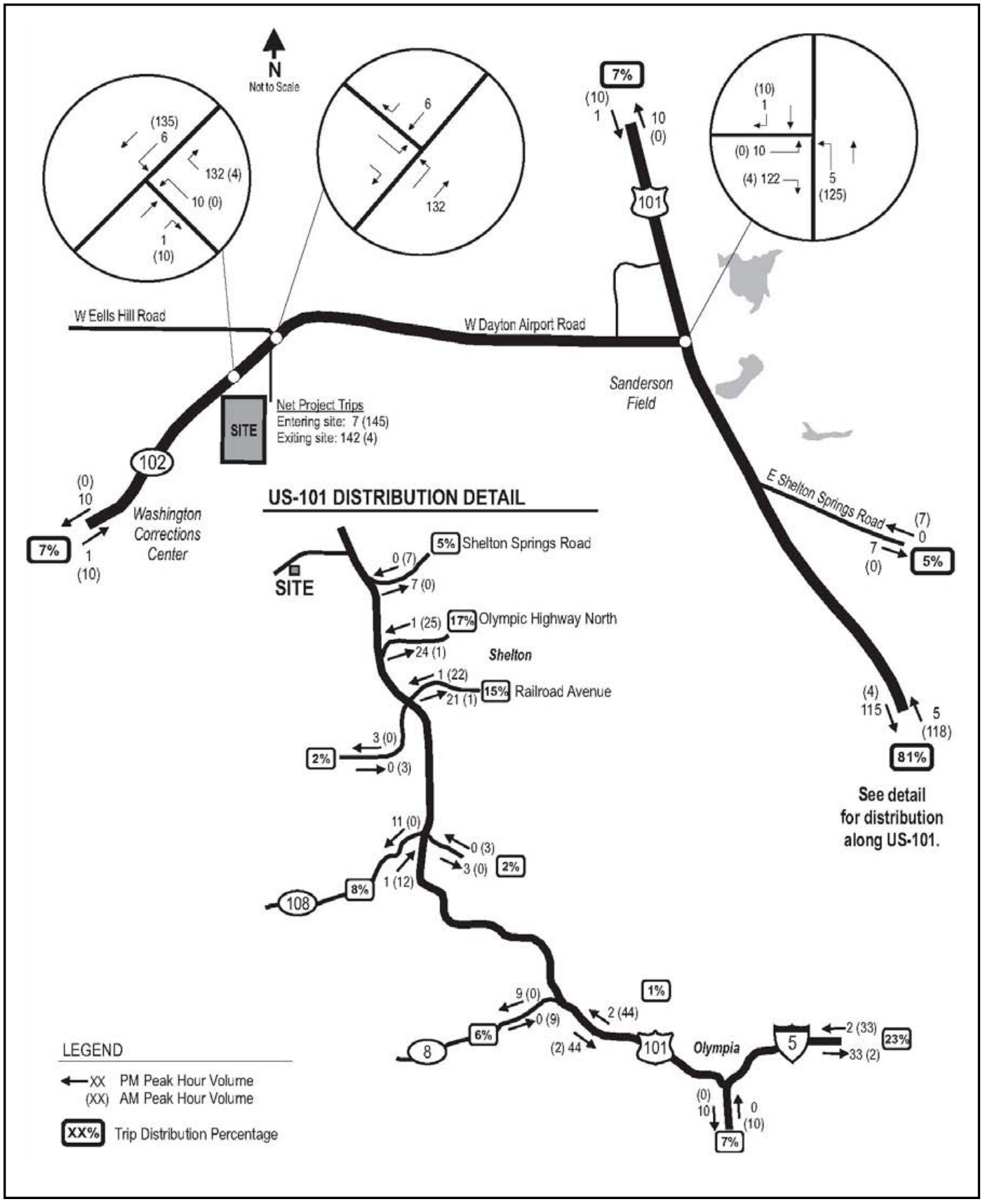
The distribution of employee trips throughout the region was estimated using zip code data for employees at the existing WCC in Mason County. For the Mason County Site, the home zip codes for 568 WCC employees were compiled and directly used to estimate origins and destinations for the trips to and from the proposed reception center, as its location is very near the existing WCC. Approximately 43% of the total trips are expected to occur within 10 miles of the site and approximately 90% of total trips expected to occur within 50 miles of the site.

Trip Assignment

The AM and PM peak hour project trips were assigned to roadways within the study area based on the estimated trip distribution patterns. The AM and PM peak hour project trip assignments for the Mason County alternative site are also shown on **Figure 3.13-3**.

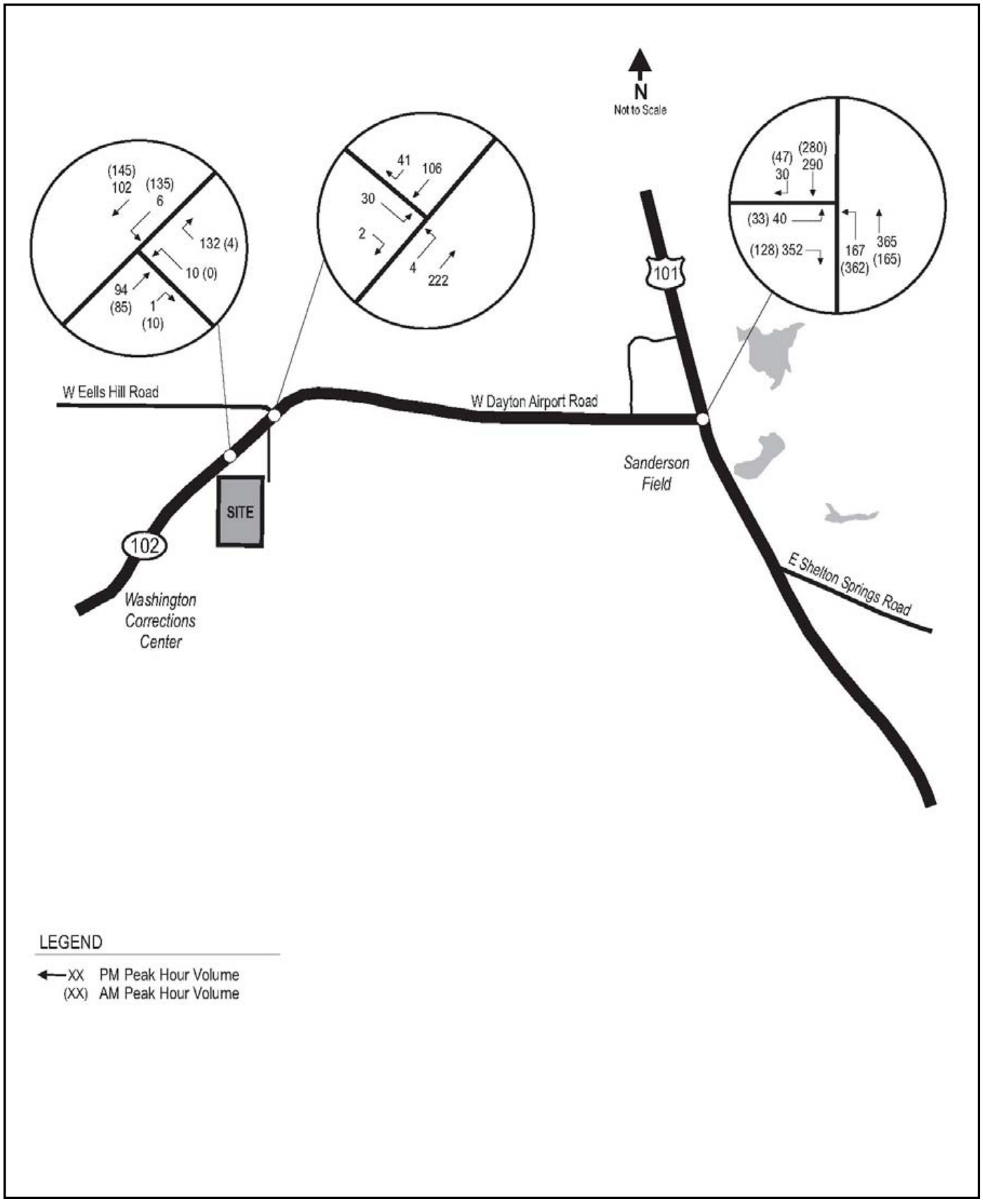
With-Project Traffic Volumes

AM and PM project trips were added to the 2016 without-project traffic volumes to estimate future conditions with the proposed facility. The 2016 with-project AM and PM peak hour volumes are shown on **Figure 3.13-4**.



Source: Heffron Transportation, Inc., 2011

Figure 3.13-3
Mason County Site - Project Generated Trips



Source: Heffron Transportation, Inc., 2011

Figure 3.13-4
Mason County Site - 2016 With Project Traffic Volumes

Traffic Volume Impacts

Table 3.13-16 summarizes the projected impacts at each of the study area intersections. As shown, at the SR 102/US 101 intersection, the project is expected to contribute 13.7% of total entering traffic during the AM peak hour and 11.1% during the PM peak hour. The largest percentage of project traffic is projected to occur at the SR 102/Eells Hill Road intersection where nearly all project traffic would pass through the intersection on SR 102 (project-generated trips are not expected to make turns at this location) and background traffic volumes are comparatively low.

Table 3.13-16
PRISON RECEPTION CENTER 2016 TRAFFIC VOLUME IMPACTS – MASON COUNTY SITE

	AM Peak Hour			PM Peak Hour		
Intersection	Project [1]	Total Entering [2]	% Project [3]	Project	Total Entering	% Project
SR 102 / US 101	139	1,015	13.7%	138	1,244	11.1%
SR 102 / Eells Hill Road		n/a [4]		138	405	34.1%

Source: Heffron Transportation, Inc. August 2011.

1. Project = Number of project generated peak hour trips forecast to enter the intersection.
2. Total Entering = The total number peak hour trips forecast to enter the intersection.
3. % Project = Project's percentage of the total entering peak hour traffic at each intersection.
4. Analyses were not required for AM peak hour conditions.

Intersection Operations

Table 3.13-17 summarizes expected 2016 with-project levels of service; 2016 without-project results are also shown for comparison. As shown, the projected traffic increases generated by the proposed reception center would not degrade operations at either of the off-site study area intersections. All movements at both locations would continue to operate at LOS C or better.

Table 3.13-17
LEVEL OF SERVICE SUMMARY – 2016 WITH-PROJECT – MASON COUNTY SITE

	AM Peak Hour Conditions				PM Peak Hour Conditions			
	2016 Without-Project		2016 With-Project		2016 Without-Project		2016 With-Project	
Unsignalized Intersections	LOS [1]	Delay [2]	LOS	Delay	LOS	Delay	LOS	Delay
SR 102 / US 101 (overall)	A	5.5	A	6.9	A	4.9	A	8.1
Turns from SR 102 to US 101	C	15.5	C	19.6	C	15.1	C	21.4
Northbound Left Turns from US 101	A	9.1	A	9.9	A	8.4	A	8.5
SR 102 / W Eells Hill Road (overall)		n/a [3]			A	0.7	A	1.3
Turns from Eells Hill Rd to SR 102					B	10.2	B	11.3
Left Turns from SR 102 to Eells Hill Rd					A	0.3	A	0.2

Source: Heffron Transportation, August 2011.

1. LOS = Level of service.
2. Delay = Average seconds of delay per vehicle.
3. Analyses were not required for AM peak hour conditions.

Analysis was conducted to determine if additional channelization or changes to the existing stop-sign traffic control could be required. Based on the queuing analysis results, the existing and planned channelization would not require modifications to accommodate traffic from the proposed reception center.

VMT and Travel Time Analyses

Table 3.13-13 shows the estimated annual VMT, which are expected to range from about 5.88 million to about 6.85 million for the three site alternatives. The annual VMT for the Mason County Site is projected to be the highest at about 6.85 million. For transport trips, the three sites are expected to have relatively similar annual VMT estimates—ranging from a low of about 215,290 (Bremerton) to a high of 222,070 (Mason County). These estimates are similar because many of the transport trips are quite long and the variation among the three sites is somewhat modest compared to overall trip length.

The table shows annual passenger vehicle travel time is expected to range from about 140,670 (Thurston County) to about 166,050 (Bremerton) vehicle-hours, with Mason County Site in the middle at 162,480. Additional discussion about methods applied to analyze VMT and travel time is provided in **Appendix H**.

Site Access and Internal Circulation

As described in **Chapter 2**, the Mason County site plan reflects one site access driveway on SR 102 (W Dayton Airport Road), located approximately 900 feet west of the Eells Hill Road intersection. Operational analysis of the access driveway was performed for AM and PM peak hour conditions. All movements at the site access are projected to operate at LOS B or better during the morning and evening peak hours.

The site access was also reviewed to determine if a left-turn pocket would be needed to serve trips entering the site from SR 102. Left-turn storage guidelines published in the WSDOT *Design Manual*[14] were reviewed with the projected 2016 with-project traffic volumes. Due to the high volume of left turns into the site expected to arrive from the east during the AM peak hour and the relatively high speed of traffic on SR 102, a left-turn pocket with 100 feet of storage would likely be needed for the site access driveway. With added buffer, taper and transition length, this could require widening SR 102 for about 720 feet (420 feet to the east and 300 feet to the west).

Based on WSDOT design standards, the access driveway should be located so that it can provide a minimum of 630 feet of sight distance in both directions. SR 102 has some vertical undulations; however, the project site being considered appears to have adequate frontage such that the driveway could be located to ensure minimum sight distance is provided. More detailed discussion of the assessment of WSDOT guidelines for turn lanes and sight distance is provided in **Appendix H**.

On-site circulation is planned to occur from the main access driveway with internal secondary connections to the bus yard, staff and public parking, and a possible vehicle service yard (vehicle service may also take place at the nearby WCC).

[14] WSDOT Design Manual, July 2011.

Traffic Safety

Under this alternative, the proposed reception center would have its access driveway on SR 102. New driveways create new conflict points on roadways and can have the potential for collisions. However, as described in the previous section, a center-left-turn pocket would likely be needed for the access driveway. In addition, the driveway would be required to provide minimum intersection sight distance (630 feet in both directions). Therefore, there are no specific safety concerns resulting from the proposed driveway.

Neither of the study area intersections evaluated for the Mason County Site experienced unusual collision rates or patterns over the three-year analysis period from 2008 through 2010. The reception center project would increase traffic volumes through both study area intersections and could contribute proportionally to future collision experience. Project traffic would represent about 7% of total entering future daily traffic at the SR 102/US 101 intersection and about 28% at SR 102/Eells Hill Road. As project traffic is not expected to make turns at Eells Hill Road and overall delay and operations are expected to remain at LOS B, project traffic is not expected to adversely impact safety conditions at this location. At the US 101 intersection, most project traffic would make right turns from SR 102 to US 101 or left turns from US 101 to SR 102. Therefore, project traffic is expected to have less exposure to conflicting movements compared to other turns at this location. Therefore, no significant adverse transportation safety impacts are anticipated with the proposed reception center project at the Mason County Site.

Transit

While it is possible that the proposed reception center project could generate some demand for transit, none is anticipated at this time since there is not an existing transit stop at or very near the proposed site location. As a result, the project is not expected to adversely impact transit service or facilities in the study area. It is possible that the DOC could work with a local transit provider, such as Mason County Transit, to establish service for the facility. However, no such service is currently planned or funded.

Non-Motorized Facilities

While it is possible that the proposed reception center project could generate a few non-motorized trips, none are anticipated at this time. As a result, the project is not expected to adversely impact non-motorized facilities in the study area.

WSDOT staff have indicated that project site frontage along SR 102 should be widened to provide the minimum shoulder width. Standards provided in the *WSDOT Design Manual* call for a shoulder width of three feet. Although the Mason County Regional Trails Plan also identified SR 102 between US 101 and Shelton-Matlock Road as a "short-term priority bikeway," Mason County will not require any widening along the project frontage beyond the minimum shoulder width required by WSDOT. [15]

[15] Personal communication, Brian Matthews, PE, Deputy Director/County Engineer, Mason County Public Works Department, October 27, 2011.

Parking Demand and Supply

Table 3.13-14 summarizes the peak parking demand for each of the parking generators, which would be the same under all three site alternatives. As previously described, the peak parking demand of 390 vehicles is expected to occur midday between 12:30 and 1:30 P.M. when all administrative staff are on site and there is an overlap of two custody-staff shifts. Parking demand for the remainder of the day would range from about 65 vehicles overnight to about 315 vehicles during the early afternoon.

As described in **Chapter 2**, the proposed prison reception center would construct about 400 parking spaces on site. This parking supply would be adequate to meet the projected peak parking demand. Therefore, no adverse parking impacts are anticipated.

Construction Traffic Impacts

Construction of the prison reception center at the Mason County Site is expected to require earthwork that would involve cut and fill of about 120,000 cy of material. However, this earthwork is expected to occur on-site (balancing the cut and fill amounts) and no off-site transport is expected.

The construction timeline (22 months) and construction employee trip estimates are the same as previously described for the Bremerton Site.

The proposed prison reception center would likely generate a noticeable amount of construction-related traffic on surrounding roadways. Construction worker vehicles and trucks carrying materials to the site would be most noticeable on SR 102. Truck traffic is not expected to degrade operations of study area intersections during off-peak hours. A construction transportation management plan (CTMP) addressing site access, traffic control, hauling routes, construction employee parking, and pedestrian and bicycle control in the area would be prepared per WSDOT and Mason County requirements. In addition, WSDOT and/or Mason County may require mitigation for construction vehicle damage to roadways in the site vicinity.

Thurston County Site

Roadway Network

Under this alternative, the project proposes to utilize as its primary access the existing driveway on Old Highway 9 that served the prior use on the site (the Maple Lane Juvenile Detention Facility). The new reception center would also use a second existing access as an emergency and service access. No off-site road modifications are proposed.

Traffic Volumes

Two separate actions that would influence traffic volumes in the transportation study area were considered at the Thurston County alternative site:

1. The recent closure of the Maple Lane Juvenile Detention Facility and removal of associated traffic on the site, and

2. Constructing the *Westside Prison Reception Center*.

Detailed discussion of methods applied to estimate trip generation, distribution and assignment is presented in **Appendix H**.

Trip Generation

Table 3.13-18 summarizes vehicle trips that are projected to result from the proposed reception center if it is located at the Thurston County Site. As shown, the project is expected to result in 994 daily vehicle trips, with 149 trips occurring in the AM peak hour (6:30 to 7:30 A.M.) and 149 trips occurring in the PM peak hour (5:00 to 6:00 P.M.). Because the majority of peak hour trips would be employee-generated, most are inbound during the AM peak hour and outbound during the PM peak hour.

If the Thurston County Site is selected for the prison reception center, it would replace the former Maple Lane Juvenile Detention Facility and it is appropriate to evaluate the net change in traffic that would be generated at the site compared to its prior use. Therefore, traffic estimates for the Maple Lane Juvenile Detention Facility were also prepared and subtracted from the prison reception center estimates in order to calculate the estimated net change in site-generated traffic.

As shown, the site's prior use as the Maple Lane Juvenile Detention Facility generated an estimated 554 daily trips with 36 trips in the AM peak hour, and no trips in the PM peak hour. No PM peak hour trips were typically generated by the Maple Lane Juvenile Detention Facility due to its staff scheduling and shift times. Based on these calculations, the reception center is projected to generate a net increase of 440 daily trips with 113 net new trips in the AM peak hour and 149 net new trips in the PM peak hour.

Table 3.13-18
NET INCREASE IN TRIP GENERATION – THURSTON COUNTY SITE

Trip Type	Daily Trips	AM Peak Hour Trips [1]			PM Peak Hour Trips [2]		
		In	Out	Total	In	Out	Total
Employees [3]	830	140	0	140	0	140	140
Transports	24	1	2	3	0	0	0
Releases	10	1	0	1	0	0	0
Visitors	60	0	0	0	0	0	0
Volunteers	20	1	0	1	6	1	7
Deliveries	20	1	1	2	0	0	0
Other	30	1	1	2	1	1	2
Total Reception Center	994	145	4	149	7	142	149
Less Existing Use [4]	*-554*	*-36*	*-0*	*-36*	*-0*	*-0*	*-0*
Net Increase in Trips	440	109	4	113	7	142	149

Source: Heffron Transportation, Inc., July 2011.

1. AM peak hour trips are estimated to occur between 6:30 and 7:30 A.M.
2. PM peak hour trips are estimated to occur between 5:00 and 6:00 P.M.
3. AM and PM peak hour employee trips would be generated by non-custody administrative and health services staff members who work from 7:00 A.M. to 5:00 P.M. The facility would also employ custody and nursing staff who work 24/7 in three shifts. Employee-generated trips that would occur at shift changes would occur outside of the AM and PM peak hours.
4. Reflects trips generated by the former Maple Lane Juvenile Detention Facility. This facility was recently closed (June 2011), but existing permitted use of the site could allow a similar type of facility.

Trip Distribution

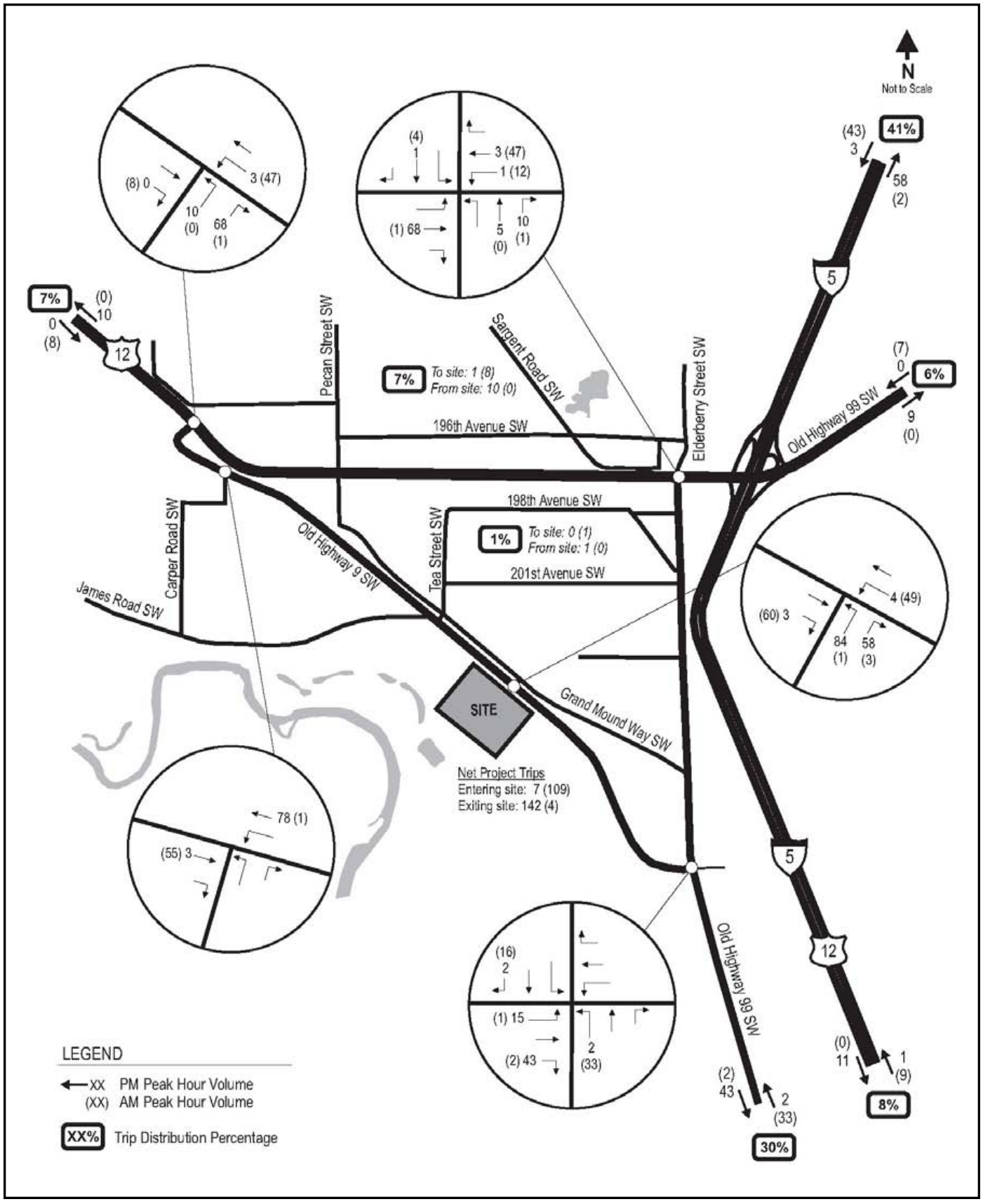
The distribution of employee trips throughout the region was estimated using zip code data for employees at the existing WCC in Mason County. For the Thurston County Site, the employee distribution was estimated by comparing the relative distances and population densities with the WCC data, and adjusting proportionally. Approximately 43% of the total trips are expected to occur within 10 miles of the site and approximately 90% of total trips expected to occur within 50 miles of the site.

Trip Assignment

The net increase in AM and PM peak hour project trips were assigned to roadways within the study area based on the estimated trip distribution patterns. The AM and PM peak hour project trip assignments are also shown on **Figure 3.13-5**.

With-Project Traffic Volumes

AM and PM project trips were added to the 2016 without-project traffic volumes to estimate future conditions with the proposed facility. The 2016 with-project AM and PM peak hour volumes are shown on **Figure 3.13-6**.



Source: Heffron Transportation, Inc., 2011

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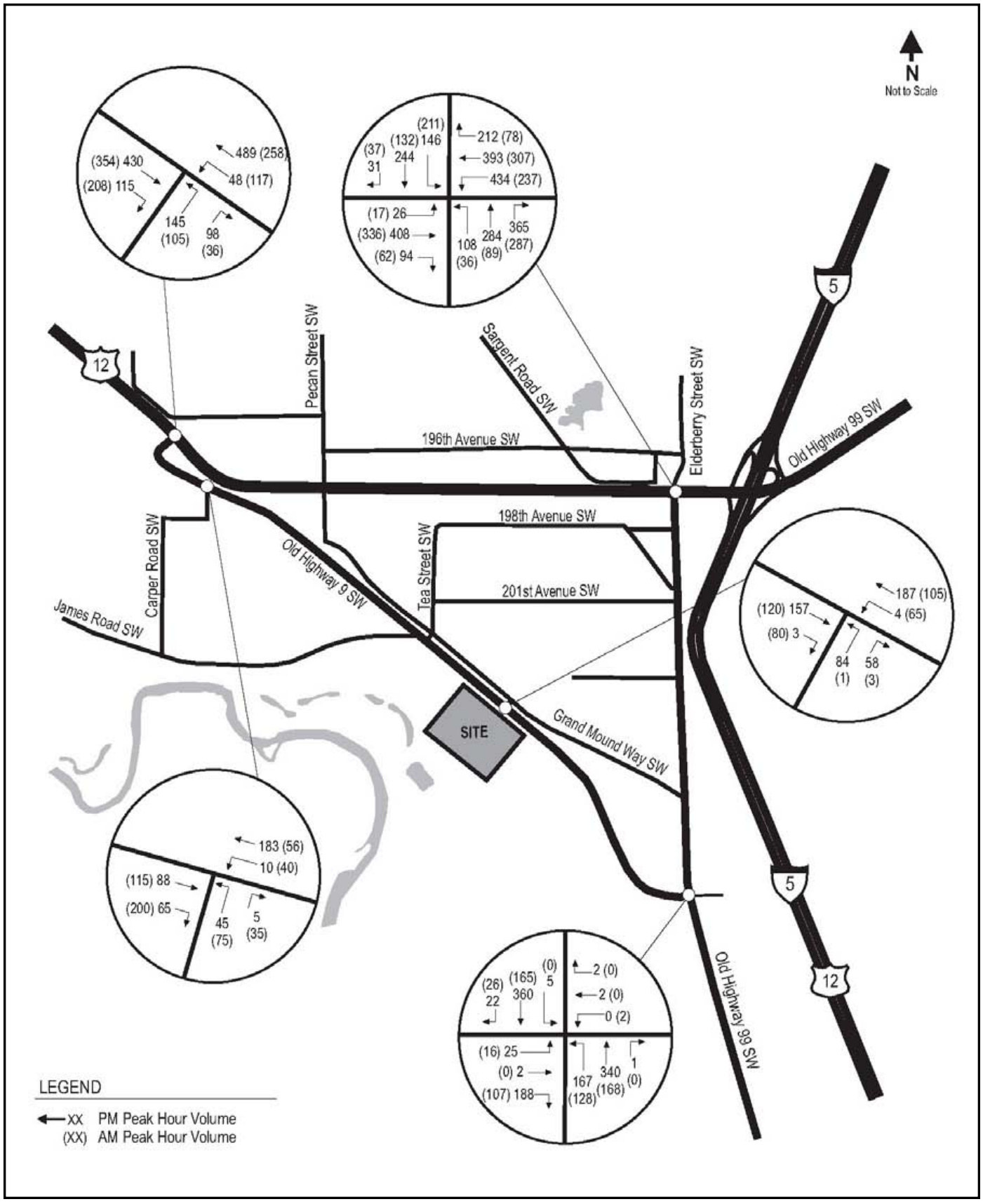
Figure 3.13-5
Thurston County Site - Project Generated Trips



Source: Heffron Transportation, Inc., 2011

Figure 3.13-6

Thurston County Site - 2016 With Project Traffic Volumes

Traffic Volume Impacts

Table 3.13-19 summarizes the projected impacts at each of the study area intersections. As shown, the project is expected to contribute between 3.2% and 8.5% at the three major study area intersections. The largest proportion of project traffic would occur at the Old Highway 9/Carper Road SW intersection (20.5% in the PM peak hour); however, this large percentage is projected due to very low background traffic volumes.

Table 3.13-19
PRISON RECEPTION CENTER 2016 TRAFFIC VOLUME IMPACTS – THURSTON COUNTY SITE

	AM Peak Hour			PM Peak Hour		
Intersection	Project [1]	Total Entering [2]	% Project [3]	Project	Total Entering	% Project
Old Hwy 99 SW / US 12 / Elderberry St	65	1,829	3.6%	88	2,745	3.2%
Old Hwy 9 SW / Old Hwy 99 SW	52	612	8.5%	62	1,114	5.6%
Old Hwy 9 SW / US 12	56	1,078	5.2%	81	1,325	6.1%
Old Hwy 9 SW / Carper Road SW	56	521	10.7%	81	396	20.5%

Source: Heffron Transportation, Inc. August 2011.

1. Project = Number of project generated peak hour trips forecast to enter the intersection.
2. Total Entering = The total number peak hour trips forecast to enter the intersection.
3. % Project = Project's percentage of the total entering peak hour traffic at each intersection.

Intersection Operations

Table 3.13-20 summarizes expected 2016 with-project levels of service; 2016 without-project results are also shown for comparison. The table shows that additional traffic forecast to be generated by the proposed reception center would add small amounts of delay to several locations; however, it is not projected to degrade levels of service at any of the study area intersections. In some cases, the project is forecast to reduce average delay for one or more movements. This occurs when the project adds trips to a movement (such as a right-turn or through movement) that has lower delay than other movements, and decreases the average delay per vehicle for the movement. It should also be noted that although the left-turn movement from Old Highway 9 to Old Highway 99 would operate at LOS E, the overall eastbound approach (left- and right-turns combined) would operate at LOS C (delay of 18.2 seconds per vehicle) with the project.

Table 3.13-20
LEVEL OF SERVICE SUMMARY – 2016 WITH-PROJECT – THURSTON COUNTY SITE

	AM Peak Hour Conditions				PM Peak Hour Conditions			
	2016 Without-Project		2016 With-Project		2016 Without-Project		2016 With-Project	
Signalized Intersection	LOS [1]	Delay [2]	LOS	Delay	LOS	Delay	LOS	Delay
Old Hwy 99 SW / US 12 / Elderberry Street SW	D	41.5	D	41.0	D	39.8	D	42.3
Unsignalized Intersections	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
Old Hwy 9 SW / Carper Road SW (overall)	A	4.7	A	4.7	A	2.5	A	2.1
WB Lefts from Old Hwy 9 to Carper Rd	A	3.8	A	4.0	A	0.7	A	0.5
NB turns from Carper Rd to Old Hwy 9	C	15.6	C	17.9	B	10.8	B	11.8
Old Hwy 9 SW / US 12 (overall)	A	3.7	A	4.5	A	2.9	A	3.9
WB Lefts from US 12 to Old Hwy 9	A	9.8	B	10.2	A	9.1	A	9.1
NB turns from Old Hwy 9 to US 12	C	16.9	C	19.9	C	19.2	C	18.8
Old Hwy 9 SW / Old Hwy 99 SW (overall)	A	3.9	A	4.2	A	3.7	A	4.7
EB Lefts from Old Hwy 9 to Old Hwy 99	B	16.2	C	18.4	E	41.4	E	48.9
EB Rights from Old Hwy 9 to Old Hwy 99	B	10.5	B	10.6	B	13.3	B	14.2
WB Turns from Private Dwy to Old Hwy 99	C	20.3	C	23.1	C	22.9	C	23.2
NB Left Turns from Old Hwy 99 to Old Hwy 9	A	8.0	A	8.2	A	9.0	A	9.0
SB Left Turns from Old Hwy 99 to Pvt. Dwy.	A	0.0	A	0.0	A	8.2	A	8.2

Source: Heffron Transportation, August 2011.

1. LOS = Level of service.
2. Delay = Average seconds of delay per vehicle.

VMT and Travel Time Analyses

Table 3.13-13 shows the estimated annual VMT, which are expected to range from about 5.88 million to about 6.85 million for the three site alternatives. The annual VMT for the Thurston County Site are projected to be lowest at about 5.88 million. For transport trips, the three sites are expected to have relatively similar annual VMT estimates—ranging from a low of about 215,290 (Bremerton) to a high of 222,070 (Mason County). These estimates are similar because many of the transport trips are quite long and the variation among the three sites is somewhat modest compared to overall trip length.

The table also shows annual passenger vehicle travel time is expected to range from about 140,670 (Thurston County) to about 166,050 (Bremerton) vehicle-hours. Additional discussion about methods applied to analyze VMT and travel time is provided in **Appendix H**.

Site Access and Internal Circulation

As described in **Chapter 2**, the Thurston County site plan reflects the use of two existing site access driveways on Old Highway 9. The primary access, previously used by the Maple Lane Juvenile Detention Facility, would serve as the primary access for the reception center. A secondary service access is located approximately 1,000 feet southeast of the primary access driveway. Operational analysis of the primary access driveway was performed for AM and PM peak hour conditions. Assuming that all project traffic would use the primary driveway, all

movements at the site access are projected to operate at LOS B or better during the morning and evening peak hours.

The site access was also reviewed to determine if a left-turn pocket would be needed to serve trips entering the site from Old Highway 9. Left-turn storage guidelines published in the WSDOT *Design Manual*[16] were reviewed with the projected 2016 with-project traffic volumes. Because the volume of background traffic on Old Highway 9 is projected to remain low, left-turn storage is not needed for the site access driveway.

Based on WSDOT design standards, the access driveway should be located so that it can provide a minimum of 700 feet of sight distance in both directions. Based on field observations, the two existing site driveways have adequate sight distance to meet these minimum requirements. More detailed discussion of the assessment of WSDOT guidelines for sight distance is provided in **Appendix H**.

On-site circulation is planned to occur from the main access driveway with internal secondary connections to the bus yard, staff and public parking, and a vehicle service yard.

Traffic Safety

Under this alternative, the proposed prison reception center would have its primary and service access driveways at existing access locations on Old Highway 9. No new driveways are proposed. The existing driveways provide minimum intersection sight distance (700 feet in both directions). Therefore, there are no specific safety concerns resulting from continued use of the existing driveways.

None of the study area intersections evaluated for the Thurston County Site experienced unusual collision rates or patterns over the three-year analysis period from 2008 through 2010. However, WSDOT did note that there have been four fatal collisions at intersections along US 12 (including one at Old Highway 9 in May 2010). The prison reception center project would increase traffic volumes through the study area intersections and along US 12 and could contribute proportionally to future collision experience. Project traffic would represent about 1.5% of total entering future daily traffic at the Old Highway 9/US 12 intersection. Most of the project traffic would be making right turns from Old Highway 9 to US 12 or left turns from US 12 to Old Highway 9. Therefore, project traffic is expected to have less exposure to conflicting movements compared to other turns at this location.

New project traffic is expected to represent between 0.8% and 2.0% of total entering daily volumes at the other three study area intersections. Therefore, no significant adverse transportation safety impacts are anticipated with the proposed prison reception center project at the Thurston County Site.

Transit

While it is possible that the proposed prison reception center project could generate some demand for transit, none is anticipated at this time since there is not an existing transit stop at or very near the proposed site location. As a result, the project is not expected to adversely impact transit service or facilities in the study area. It is possible that the DOC could work with a local

[16] WSDOT Design Manual, July 2011.

transit provider, such as Twin Transit, to establish service for the facility. However, no such service is currently planned or funded.

Non-Motorized Facilities

While it is possible that the proposed prison reception center project could generate a few non-motorized trips, none are anticipated at this time. As a result, the project is not expected to adversely impact non-motorized facilities in the study area.

Parking Demand and Supply

Table 3.13-14 summarizes the peak parking demand for each of the parking generators, which would be the same under all three site alternatives. As previously described, the peak parking demand of 390 vehicles is expected to occur midday between 12:30 and 1:30 P.M. when all administrative staff are on site and there is an overlap of two custody-staff shifts. Parking demand for the remainder of the day would range from about 65 vehicles overnight to about 315 vehicles during the early afternoon.

As described in **Chapter 2**, the proposed prison reception center would construct about 400 parking spaces on site. This parking supply would be adequate to meet the projected peak parking demand. Therefore, no adverse parking impacts are anticipated.

Construction Traffic Impacts

Construction of the prison reception center at the Thurston County Site is expected to require earthwork that would involve cut and fill of approximately 35,000 cy of material. However, most of this earthwork is expected to occur on-site (balancing the cut and fill amounts) and minimal off-site transport of soil is expected. Since the site is somewhat limited with space, it is possible that some transport of soil (about 5,000 cy) could occur. This material is expected to be moved using trucks that can carry 20 cy each and would result in about 313 truckloads (assuming a 1.25 fluff factor—the increase in soil volume due to removing it from the ground). The earthwork is expected to occur over several months with some periods of higher activity than others. If the transport of excavated materials were to occur across one month (21 working days), it would result in an average of approximately 15 truckloads per day. Each truckload would generate two trips (one inbound and one outbound) and would most likely occur during daytime hours (8:00 A.M. through 4:00 P.M.). Most construction transportation is stopped by 4:00 P.M. to avoid unnecessary delay to truck drivers from peak hour congestion. Assuming transportation occurs over eight hours each workday, the earthwork for the Thurston County Site alternative would generate an average of about four truck trips per hour (2 inbound, 2 outbound).

The construction timeline (22 months) and construction employee trip estimates are the same as previously described for the Bremerton Site.

The proposed project would likely generate a noticeable amount of construction-related traffic on surrounding roadways. Construction worker vehicles and trucks carrying materials to the site would be most noticeable on Old Highway 9. The truck traffic is not expected to degrade operations of study area intersections during off-peak hours. A construction transportation management plan (CTMP) addressing site access, traffic control, hauling routes, construction employee parking, and pedestrian and bicycle control in the area would be prepared per Thurston County requirements. In addition, Thurston County may require mitigation for construction vehicle damage to roadways in the site vicinity.

Summary of Three Site Alternatives

The net increase in daily traffic would be 994 vehicles for the Bremerton and Mason County Sites, and 440 vehicles for the Thurston County Site, which accounts for existing traffic from the recently closed Maple Lane Juvenile Detention Facility. The net increase in the AM and PM peak hour traffic would be 149 vehicles for all three sites, with the exception of the AM peak hour at the Thurston County Site with 113 vehicles. The number of study area intersections that would experience more than 5% increase in peak hour traffic due to the project vary from one intersection near the Bremerton Site in the PM peak hour to three intersections near the Thurston County Site during both the AM and PM peak hours. None of the study area intersections at any of the three sites would operate at LOS E or F.

Due to cut and fill activities on the Thurston County Site, approximately 313 truckloads would be necessary to transport soil, which would result in an average of 15 truckloads per day. No import or export of soil would be necessary on the Bremerton or Mason County Sites.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives, but the increased demand for additional long-term prison space would remain. Potential transportation-related impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** – For all three alternative sites, transportation conditions for the No Action Alternative were evaluated and are described in the *Affected Environment* section as the "without-project condition. Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential transportation impacts resulting from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in new transportation-related impacts.

3. **Additional Long-Term Incarceration Capabilities** – Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for space as well as the displaced long-term prison space at the WCC due to increased prison reception center uses. Such construction could result in utility-related impacts. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential transportation-related impacts.

3.13.3 Mitigation Measures

All Sites

To mitigate the short-term construction impacts, the project's contractor would prepare a Construction Transportation Management Plan per local jurisdiction requirements. This plan would document proposed construction haul routes, where contractors would park during various stages of construction, and any necessary elements to mitigate impacts on access and non-motorized transportation in the site area.

Bremerton Site

The following mitigation has been identified for the Bremerton Site:

- **Left-Turn Storage for Site Access:** Left-turn storage is recommended for the site access driveway. The left-turn pocket should be 12-feet wide and have a minimum of 100 feet of storage (with a 50-foot buffer before starting the taper) and a 300-foot taper. Southeast of the site access, widening would also be required to transition back to two lanes. In total, this could require widening SW Lake Flora Road for about 750 feet (450 feet to the northwest and 300 feet to the southeast).

- **Access Location for Sight Distance:** The access driveway should be located so that it can provide a minimum of 700 feet of sight distance in both directions.

- **Frontage Improvements:** City of Bremerton staff has indicated the *Bremerton Municipal Code (BMC) Title 11* would require full street improvements and dedication of public right-of-way along the project site frontage. Frontage improvements are typically required along the entire street frontage of the parcel to be developed. The length of the actual frontage improvements for this alternative site will depend on the size and location of the parcel selected for development. The code required frontage improvements are detailed in the "Functional Roadway Classification" table that is part of the *Bremerton Road Standards*.[17] For SW Lake Flora Road—a minor arterial—half-street improvements could consist of curb, gutter, and sidewalk, a 5-foot bike lane, a 6-foot planter strip, and a 12-foot travel lane. City staff has also noted that a subarea plan currently being developed (for the SKIA) will likely contain different standards for frontage requirements, allowing more flexibility for development. The new standards will have an emphasis on Low Impact Development (LID), and will be available for review in fall 2011. City staff indicated that some form of pedestrian walkway will likely be required with either the existing standards (sidewalk) or the updated standards. With the required frontage improvements, non-motorized access in the site vicinity would be improved with the project.

- **Traffic Impact Fees:** No traffic mitigation fees would be required.

[17] City of Bremerton Road Standards, Functional Roadway Classification, 10/22/2002.

Mason County Site

The following mitigation has been identified for the Mason County Site:

- **Left-Turn Storage for Site Access:** Left-turn storage is recommended for the site access driveway. The left-turn storage lane should be 12-feet wide and have a minimum of 100 feet of storage (with a 50-foot buffer before starting the taper) and a 270-foot taper. West of the site access, widening would also be required to transition back to two lanes to the west. In total, this could require widening SR 102 for about 720 feet (420 feet to the east and 300 feet to the west).

- **Access Location for Sight Distance:** The access driveway should be located so that it can provide a minimum of 630 feet of sight distance in both directions.

- **Frontage Improvements:** WSDOT staff has indicated that project site frontage along SR 102 should be widened to provide the minimum shoulder width. Based on *WSDOT Design Manual*, a shoulder width of three feet would be required.

- **Traffic Impact Fees:** No traffic mitigation fees would be required.

Thurston County Site

The following mitigation has been identified for the Thurston County Site:

- **Frontage Improvements:** Thurston County staff has indicated that, in consideration of the DOC granting space on the parcel (currently occupied by Maple Lane Juvenile Detention Facility) to Thurston County for a municipal water supply reservoir, Thurston County will assume the responsibility for building frontage improvements along Old Highway 9 for the proposed reception center. This would include upgrades or improvements to the Prairie Creek Bridge.[18]

- **Traffic Impact Fees:** Within Thurston County, traffic mitigation fees are determined through the SEPA review process; specifically under the authority of WAC 197-11-660 (Substantive authority and mitigation) and the Concurrency Ordinance (Chapter 17.10) adopted under Chapter 17.09.150 (Substantive Authority) of the Thurston County Code. The fees within the Grand Mound area were recently updated to account for developer funded frontage improvements that have been completed as well as incorporating current construction cost data. The proposed reception center is projected to add PM peak hour traffic to two corridors with planned improvements—Old Highway 99 and US 12 (Grand Mound Intersection Improvements). The following summarizes the estimated impact fees for each:[19]

    - Based on the project traffic assignments, the Reception Center is forecast to add 98 PM peak hour trips on the affected segments of US 12. The County Road Project

[18] Email communication, Scott Lindblom – Engineering Program Manager/Design, Thurston County Public Works, August, 11, 2011.
[19] Fee rates and trip allocation method provided by Scott Lindblom – Engineering Program Manager/Design and Kevin Hughes – Development Review, Thurston County Public Works, August, 12, 2011.

(CRP) UGA – US 12 – Grand Mound Intersection Improvement fee rate is $1,188 per new trip. Therefore, the fee for this project would be $116,424.

- There are four CRP projects along Old Highway 99 that would be impacted by the proposed reception center traffic:

  61304 – 201st to US 12: rate of $250 per trip x 17 trips = $4,250
  61332 – 203rd to 201st: rate of $492 per trip x 17 trips = $8,364
  61442 – Grand Mound UGA to Great Wolf: rate of $742 per trip x 62 trips = $46,004
  61470 – Great Wolf Lodge to 203rd: rate of $525 per trip x 17 trips = $8,925

Based on fees described for each project above, the total traffic impact fee for the reception center is estimated at **$183,967**.

WSDOT is no longer collecting fees for the I-5 Grand Mound Interchange Replacement and Reconfiguration project nor for any other nearby WSDOT project. Therefore, no fees would be due to WSDOT for this alternative.

3.13.4 Unavoidable Adverse Impacts

The proposed prison reception center at any of the three sites would generate an increase in daily and peak hour traffic that could slightly increase delay at study area intersections. However, the increases in delays are not projected to be significant at any of the three sites.

3.14 PUBLIC SERVICES

This section describes the existing public services (police, fire/emergency medical services, schools, parks/recreation and maintenance services) on and in the vicinity of the three site alternatives. Potential impacts to public services with construction and operation of the proposed *Westside Prison Reception Center* are analyzed.

3.14.1 POLICE SERVICES

This section describes the existing police services provided in the vicinity of the three site alternatives: an analysis of potential impacts to police services with construction and operation of the facility; proposed measures to mitigate any significant impacts; and, a description of any significant unavoidable adverse impacts to police services.

3.14.1.1 Affected Environment

This section provides a description of the existing police services provided to each of the three alternative sites and population centers within approximately ten miles of the sites; this analysis includes the approximately ten mile radius because a substantial portion of the employees associated with the *Westside Prison Reception Center* are assumed to reside in this area, as analyzed in Section 3.9, **Employment, Population and Housing**. Local police agencies are typically responsible for the maintenance of public order, responding to incidents of criminal activity, traffic control, criminal investigations, crime prevention, Homeland Security issues, and other related public services.

Bremerton

Bremerton Site

Information regarding the existing police services on and near the Bremerton Site described in this section was primarily provided by the Bremerton Police Department[1].

Police protection services to the Bremerton Site are currently provided by the Bremerton Police Department (BPD). The BPD Headquarters is also the police station that serves the site and is located at 1025 Burwell Street in Bremerton, approximately 6.2 miles northeast of the site, as shown on **Figure 3.14-1**. The site is located in the west patrol sector. The BPD runs three shifts and employs the following staff: one chief; two captains, three lieutenants; eight sergeants; 49 officers and 13 civilians. Police officers generally work five, eight hour shifts per week. Traffic Unit work shifts overlap the Patrol shifts and provide coverage during shift changes. **Table 3.14.1-1** below describes the shifts and staffing levels at the BPD:

[1] Wolfe, Capt. Tom. *Letter to Karen Swenson regarding Bremerton Police Department*, July 15, 2011.

Source: EA|Blumen, Google, 2011

EA | BLUMEN

Figure 3.14-1

Bremerton Site - Public Services

Table 3.14.1-1
BREMERTON POLICE DEPARTMENT SHIFTS AND STAFFING LEVELS

Watch	Patrol	Traffic	Staffing Levels
1st	06:00 – 14:00	07:00 – 15:00	Two Sergeants and Nine Officers
2nd	14:00 – 22:00	12:00 – 20:00	Two Sergeants and Ten Officers
3rd	22:00 – 06:00	20:00 – 04:00	Two Sergeants and Nine Officers

Source: Bremerton Police Department, 2011.

The 2004 *City of Bremerton Comprehensive Plan* establishes level of services (LOS) standards for police services. In the plan horizon of 20 years (by 2024), Bremerton intends to achieve the level of service goal of 1.8 law enforcement officers per 1,000 population. The City has established a response time call of four minutes for Priority 1 and 2 calls. The City of Bremerton does not require a development impact fee for police services.

Presently, the BPD is staffed at approximately 1.79 officers per 1,000 residents, a slightly higher LOS than the statewide average of 1.6 officers per 1,000 residents[2] but slightly less than the City of Bremerton's long-term goal of 1.8 officers per 1000 residents. Per the BPD, there are currently no known staff, equipment or facilities deficiencies.

Table 3.14.1-2 shows the total dispatched calls from 2006 to 2010 for the City as a whole. This table also includes the total dispatched calls for the South Kitsap Industrial Area (SKIA) area where the Bremerton Site is located. Total dispatched calls for the City have averaged 55,339 calls a year for the past five years. For the SKIA area (which includes the airport and Olympic Business Park as well as the Bremerton Site), calls averaged 374 calls per year over the past five years. As the Bremerton Site is an undeveloped wooded area, no calls for service have been generated specific to the site.

Table 3.14.1-2
BREMERTON POLICE DEPARTMENT CALLS FOR SERVICE

Year	City	SKIA Area (including site)
2006	55,124	415
2007	55,128	413
2008	54,491	310
2009	55,442	307
2010	56,512	425

Source: Bremerton Police Department, 2011.

Bremerton Site Vicinity

The primary population centers within ten miles of the Bremerton Site include Bremerton, Belfair, Port Orchard and an unincorporated area of Kitsap County located west of Highway 16/east of Glenwood Road. Police services are provided to areas within a ten mile radius of the site by the following agencies:

[2] Washington Association of Sheriffs and Police Chiefs, *Full-time Law Enforcement Employees,* 2010.

- The City of Bremerton is served by the Bremerton Police Department which currently has a ratio of 1.79[3] commissioned officers per 1,000 residents.

- The town of Port Orchard is served by the Port Orchard Police Department which currently has a ratio of 0.6[4] commissioned officers per 1,000 residents.

- The area west of Highway 16/east of Glenwood Road and other unincorporated areas within the ten mile radius are served by the Kitsap County Sheriff's Department (which currently has a ratio of 0.72[5] commissioned officers per 1,000 residents).

- The town of Belfair is served by Mason County Sheriff's Department (which currently has a ratio of 0.95[6] commissioned officers per 1,000 residents).

Mason County

Mason County Site

Information regarding the existing police services on and near the Mason County Site described in this section was primarily provided by the Mason County Sheriff's Office on August 12, 2011[7].

Police protection services to the Mason County Site are currently provided by the Mason County Sheriff's Department. The Mason County Sheriff's Headquarters is the police station that serves the site and is located at 322 North 3rd Street in Shelton, approximately 7.2 miles east of the site, as shown on **Figure 3.14-2**. The site is located in the south patrol sector. The Mason County Sheriff's department runs five shifts. The Mason County Sheriff's Department presently employs 49 commissioned personnel, 29 jail personnel, two community service officers and 17 administrative support personnel. **Table 3.14.1-3** below describes the shifts and staffing levels at the Mason County Sheriff's Department:

Table 3.14.1-3
MASON COUNTY SHERIFF'S DEPARTMENT SHIFTS AND STAFFING LEVELS

Watch	Patrol	Staffing Levels
Morning Shift	04:00 -14:00	1 sergeant, 4 deputies
Day Shift	08:00 – 18:00	1 sergeant, 10 deputies
Early Swing	14:00 – 24:00	1 sergeant, 4 deputies
Swing	16:00 – 23:00	1 sergeant, 4 deputies
Graveyard	18:00 – 04:00	1 sergeant, 6 deputies

Source: Mason County Sheriff's Department, 2011.

[3] Washington Association of Sheriffs and Police Chiefs, *Full-time Law Enforcement Employees,* 2010.
[4] Washington Association of Sheriffs and Police Chiefs, *Full-time Law Enforcement Employees,* 2010.
[5] Washington Association of Sheriffs and Police Chiefs, *Full-time Law Enforcement Employees,* 2010.
[6] Washington Association of Sheriffs and Police Chiefs, *Full-time Law Enforcement Employees,* 2010.
[7] Byrd, Chief Deputy B. Dean. *Letter to Karen Swenson Regarding Mason County Sheriff's Department*, August 12, 2011.

Source: EA|Blumen, Google, 2011

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Figure 3.14-2

Mason County Site - Public Services

The *Mason County Comprehensive Plan* has no established level of service standards or response time goal for police services. Presently, the Sheriff's department is staffed at approximately 0.95[8] officers per 1,000 residents, less than the average staffing of police departments in Washington State at 1.6 officers per 1,000 residents. Mason County does not require a development impact fee for police services.

Table 3.14.1-4 shows the total dispatched calls from 2006 to 2010 for the County as a whole and the Mason County Site area. The Mason County Site area is defined as the South Patrol Sector and includes both the WCC and the Mason County Site. Total dispatched calls for the County have averaged 19,397 calls over the past five years. Calls for the Mason County Site area have averaged 436 calls over the last three years. As the site is an undeveloped wooded area, no calls for service have been generated specific to the site.

Further, the Mason County Sheriff's Department currently provides police services to the existing Department of Corrections Washington Correctional Center (WCC) which houses the existing prison reception center functions, that is near the Mason County Site. Police services provided to the WCC include responding to incidents on the WCC grounds outside of the secured perimeter of the WCC (such as car break-ins in the parking lot) and writing reports to document criminal incidents inside the facility after the incidents have occurred and the situation stabilized. According to the Mason County Sheriff's Department, calls for police services to the existing WCC have averaged 20.5 calls per year over the last five years.[9] The Mason County Sheriff's Department currently has a Memorandum of Understanding with the Department of Corrections which outlines these responsibilities.

Table 3.14.1-4
MASON COUNTY SHERIFF'S DEPARTMENT CALLS FOR SERVICE

Year	County	Mason County Site Area	Existing WCC
2010	18,235	557	20
2009	19,378	470	22
2008	19,354	281	13
2007	20,026	No data available	13
2006	19,993	No data available	33

Source: Mason County Sheriff's Department, 2011.

Mason County Site Vicinity

The primary population centers within ten miles of the Mason County Site include the City of Shelton and population clusters within unincorporated Mason County. Police services are provided to areas within a ten mile radius of the site by the following agencies:

[8] Washington Association of Sheriffs and Police Chiefs, *Full-time Law Enforcement Employees,* 2010.

[9] Information provided by the DOC on August 4, 2011, indicates an average of 4.6 calls per year over the last 1.5 years, or 7 calls total. The discrepancy may result from police responses within the facility versus responses to the site, which includes the area outside the facility (parking lot). For purposes of this EIS analysis, the higher number was utilized.

- The City of Shelton is served by the Shelton Police Department which currently has a ratio of 2.06[10] commissioned officers per 1,000 residents.
- Unincorporated areas within the ten mile radius are served by the Mason County Sheriff's Department, which currently has a ratio of 0.95[11] commissioned officers per 1,000 residents.

Thurston County Site

Thurston County Site

Information regarding the existing police services on and near the Thurston County Site described in this section was primarily provided by the Thurston County Sheriff's Office on July 27, 2011.[12]

Police protection services to the Thurston County Site are currently provided by the Thurston County Sheriff's Office (TCSO). The TCSO's Headquarters is also the station that serves the site and is located at 2000 Lakeridge Drive SW, Olympia, as shown on **Figure 3.14-3**. The TCSO has a substation located 4.1 miles from the site in Rochester, but this is not a fully staffed office. The site is located in the D patrol district.

The TCSO runs five shifts with staggering start times. The TCSO presently employs 82 commissioned officers and 40 civilian employees. Police officers generally work approximately 10.5 hour shifts on a five day on/4 day off work schedule. **Table 3.14.1-5** below describes the shifts and staffing levels at the TCSO:

Table 3.14.1-5
THURSTON COUNTY SHERIFF'S OFFICE SHIFTS AND STAFFING LEVELS

Watch	Patrol	Staffing Levels
1st	05:00-15:40	1 Lieutenant, 1 Sergeant, 9 Deputies
2nd	09:00-19:40	1 Lieutenant, 1 Sergeant, 10 Deputies
3rd	15:00-01:40	1 Lieutenant, 2 sergeants, 9 Deputies
4th	18:20-05:00	1 Lieutenant, 2 Sergeants, 14 Deputies
5th	22:20-09:00	2 Sergeants, 9 Deputies

Source: Thurston County Sheriff's Office, 2011.

The *Thurston County Comprehensive Plan* does not indicate level of service standards for the TCSO. Currently, the TCSO is staffed at 0.67 deputies per 1,000 residents, below the statewide average staffing level of 1.6 deputies per 1,000 residents[13]. Thurston County has established a response call time of 7.5 minutes. Thurston County does not require a development impact fee for police services.

[10] Washington Association of Sheriffs and Police Chiefs, *Full-time Law Enforcement Employees,* 2010.
[11] Washington Association of Sheriffs and Police Chiefs, *Full-time Law Enforcement Employees,* 2010.
[12] Petrie, Capt. Mike. *Letter to Karen Swenson regarding Thurston County Sheriff's Department*, July 27, 2011.
[13] Washington Association of Sheriffs and Police Chiefs, *Full-time Law Enforcement Employees,* 2010.

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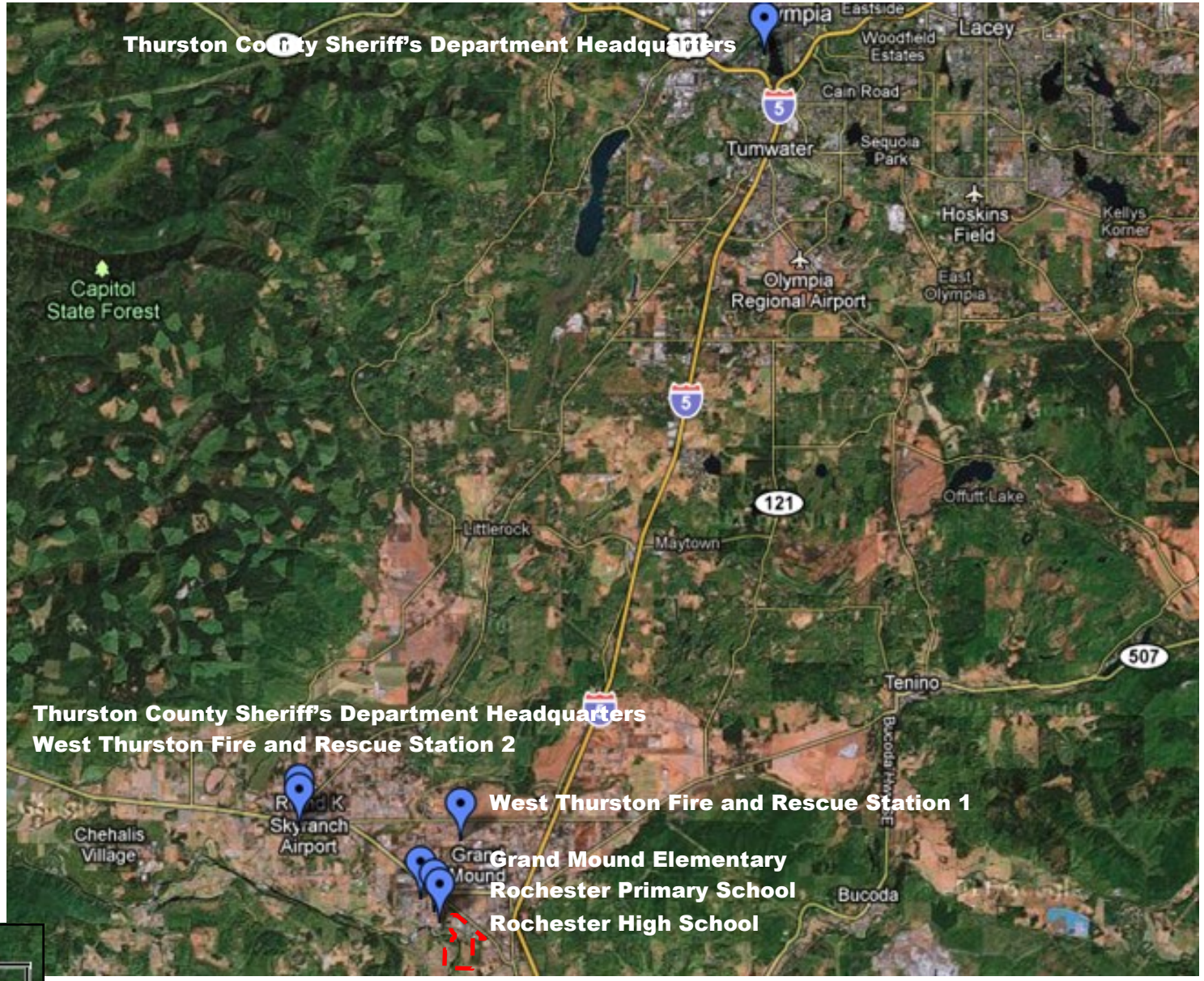
Westside Prison Reception Center Draft EIS



Source: EA|Blumen, Google, 2011

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Figure 3.14-3

Thurston County Site - Public Services

Table 3.14.1-6 shows the total dispatched calls from 2009 to 2010 for the County as a whole and for the Thurston County Site. Total dispatched calls for the County averaged 59,108 over the last two years. For the Thurston County Site, the former Maple Lane Juvenile Facility averaged 82 calls for police services per year over the last five years.

Table 3.14.1-6
THURSTON COUNTY SHERIFF'S DEPARTMENT CALLS FOR SERVICE

Year	Thurston County	Thurston County Site (former Maple Lane Juvenile Facility)
2010	56,158	55
2009	62,058	87
2008	No data available	73
2007	No data available	70
2006	No data available	125

Source: Thurston County Sheriff's Department, 2011.

Thurston County Site Vicinity

The primary population centers within ten miles of the Thurston County Site include Rochester, Grand Mound and Centralia. Police services are provided to areas within a ten mile radius of the site by the following agencies:

- The towns of Rochester and Grand Mound and other unincorporated areas within the approximately ten mile radius are served by the Thurston County Sheriff's Department which has a staffing level of 0.67[14] commissioned officers per 1,000 residents.

- The City of Centralia is served by the Centralia Police Department which has a staffing level of 1.89[15] commissioned officers per 1,000 residents.

3.14.1.2 Impacts

This section summarizes the potential impacts to police services at the three site alternatives. Impacts to police services could occur during construction (i.e., during demolition, grading activities and construction of the buildings and infrastructure) and/or operation of the facility (i.e., following site construction when the facility is fully functioning). Impacts could include direct impacts from prison reception center facility operations as well as indirect impacts from population increases associated with new employment at the facility.

[14] Washington Association of Sheriffs and Police Chiefs, *Full-time Law Enforcement Employees,* 2010.
[15] Washington Association of Sheriffs and Police Chiefs, *Full-time Law Enforcement Employees,* 2010.

Methodology

Prison Reception Center

Direct police response to the *Westside Prison Reception Center* would be limited to incidents outside the secured portion of the facility such as car break-ins or traffic accidents in the parking lot. It is assumed that when a criminal event occurs within the secured portion of the facility, Department of Corrections staff would control the incident and local police officers would be responsible to complete a follow-up written incident report. Local police officers would only enter the facility after the incident occurred and the facility was secured.

If DOC staff required assistance within the secured portion of the facility to assist in controlling an incident, the Washington State Patrol would be called for assistance. No local law enforcement officers would be called to the interior of the facility during any incident. A Memorandum of Understanding would be developed between the Department of Corrections and the local jurisdiction to specify these responsibilities.

As stated in **Chapter 2**, approximately 80 percent (approximately 1,060 beds) of the Washington Correctional Center is occupied with the existing DOC prison reception center functions and 20 percent (approximately 240 beds) is occupied with long-term incarceration functions. Data provided by the Mason County Sheriff's Office indicates that there was an average of 20.5 calls per year (or 1.7 calls per month) over the last five years to provide police services to the existing WCC.[16] Only a portion of these calls would be attributable to the offenders temporarily housed at the WCC for reception center processing, whereas the rest would be attributable to the offenders incarcerated at the facility long-term. However, for purposes of this EIS analysis, it is conservatively assumed that the *Westside Prison Reception Center* would generate approximately 20.5 calls per year for law enforcement assistance.

Population Increase

As analyzed in Section 3.9, **Employment, Population and Housing**, the 478 new jobs generated by the development of the proposed prison reception center could prompt population increases in both the jurisdiction where the facility is located and other nearby population centers. (See Section 3.9, for additional details). The assumed population increases could result in increased demand for law enforcement services in the jurisdiction where the facility is located and areas within a ten mile radius of the site. As described in Section 3.9, employees living more than ten miles from the site would also be dispersed over a greater area, and impacts to police services would not be expected to be significant.

[16] Information provided by the DOC on August 4, 2011, indicates an average of 4.6 calls per year over the last 1.5 years, or 7 calls total. The discrepancy may result from police responses within the facility versus responses to the site, which includes the area outside the facility (parking lot). For purposes of this EIS analysis, the higher number was utilized.

Bremerton Site

Construction

Construction activities associated with the proposed *Westside Prison Reception Center* at the Bremerton Site could result in an increased demand for police services during the two year construction period. BPD service calls could increase during construction due to trespassing, construction site theft, vandalism and traffic incidents due to construction traffic. The construction site would be secured to prevent trespassing, vandalism and to avoid accidents involving the public. The number of construction workers temporarily relocating to the area during the construction period (and the associated increased demand for police protection services) would not be anticipated to be substantial. Overall, construction impacts on police services would be short-term and would not be significant. Existing BPD staffing and equipment are expected to be sufficient to handle increased calls for services associated with construction activities over the construction period.

Operations

Operations of the proposed *Westside Prison Reception Center* at the Bremerton Site could result in an increased demand for police services from both operations of the prison reception center facility and from the population increases associated with new employment.

Prison Reception Center

As described in the Methodology discussion above, operations of the proposed prison reception center at the Bremerton Site would be anticipated to result in additional calls for police services from the Bremerton Police Department to respond to incidents outside the secured portion of the *Westside Prison Reception Center* (such as car break-ins or traffic accidents in the parking lot) and writing a follow-up incident report when a criminal event occurs within the facility. It is estimated that approximately 20.5 additional calls for police services would occur per year, based on historical averages from the existing Washington Correctional Center which houses the existing reception center function. According to the Bremerton Police Department[17], the additional calls for service associated with the operations of the proposed prison reception center facility at the site would not result in new significant impacts.

Population Increase

As stated in Section 3.14.1.1, the primary population centers within ten miles of the Bremerton Site include Bremerton, Port Orchard, Belfair and the unincorporated area of Kitsap County located west of Highway 16 and east of Glenwood Road. Anticipated population increases within these areas (as analyzed in Section 3.9, **Employment, Population and Housing**) and the associated impacts on police services would be as follows:

- Up to approximately 252 new residents could move into the City of Bremerton. The 62 commissioned officers of the Bremerton Police Department currently serve

[17] Wolfe, Capt. Tom. *Letter to Karen Swenson regarding Bremerton Police Department*, July 15, 2011.

approximately 34,580 residents which could increase to 34,832 under the proposal. This population increase would change the ratio of commissioned officers per 1,000 residents from 1.79 under existing conditions to 1.78 under the proposal. No significant impacts would be anticipated.

- Up to approximately 180 new residents could move into the town of Port Orchard. The approximately five commissioned officers of the Port Orchard Police Department currently serve approximately 8,250 residents which could increase to 8,430 residents under the proposal. The existing ratio of 0.6 commissioned officers per 1,000 residents would change to 0.59 as a result of this population increase. No significant impacts would be anticipated.

- Up to approximately 272 residents could move into the Belfair area. The approximately 41 commissioned officers of the Mason County Sheriff's Department currently serve approximately 43,165 residents which would increase to 43,437 under the proposal. The existing ratio of 0.95 commissioned officers per 1,000 residents would change to 0.94 under the proposal. No significant impacts would be anticipated.

- Up to 132 residents could move into the unincorporated area of Kitsap County located west of Highway 16 and east of Glenwood Road. The approximately 121 commissioned officers of the Kitsap County Sheriff's Office currently serve approximately 167,920 residents which could increase to 168,052 under the proposal. The existing ratio of 0.72 commissioned officers per 1,000 residents would not change as a result of this population increase.

Mason County Site

Construction

Construction activities associated with the proposed *Westside Prison Reception Center* at the Mason County Site could result in an increased demand for police services during the two year construction period. Service calls could increase during construction due to trespassing, construction site theft, vandalism and traffic incidents due to construction traffic. The construction site would be secured to prevent trespassing, vandalism and to avoid accidents involving the public. Overall, construction impacts on police services would be short-term and would not be substantial. Existing staffing and equipment are expected to be sufficient to handle increased calls for services associated with construction activities over the buildout period.

Operations

Prison Reception Center

As described in the Methodology discussion above, operations of the proposed prison reception center at the Mason County Site would be anticipated to result in additional calls for police services from the Mason County Sheriff's Department. These services would include responding to incidents outside the secured portion of the *Westside Prison Reception Center* (such as car break-ins or traffic accidents in the parking lot) and writing a follow-up incident

report when a criminal event occurs within the facility. It is estimated that approximately 20.5 additional calls for police services per year to the *Westside Prison Reception Center* would be anticipated, based on historical averages from the existing Washington Correctional Center which currently houses the reception center function. According to the Mason County Sheriff's Department[18], the additional calls for service associated with the operations of the proposed prison reception center facility at the Mason County Site would not result in new significant impacts.

If the Mason County Site were chosen for development of the proposed prison reception center, the existing WCC would transition to all long-term incarceration functions. This transition would not be anticipated to result in a significant change to the demand for police services on the existing WCC site as the number of offenders at the WCC (1,300) would not be anticipated to significantly change.

Population Increase

As stated in Section 3.14.1.1, the primary population centers within ten miles of the Mason County Site include Shelton and unincorporated Mason County. Anticipated population increases within these areas (as analyzed in Section 3.9, **Employment, Population and Housing**) and the associated impacts on police services would be as follows:

- Up to approximately 288 new residents could move into the City of Shelton. The 18 commissioned officers of the Shelton Police Department currently serve approximately 8,735 residents which could increase to 9,023 under the proposal. This population increase would change the ratio of commissioned officers per 1,000 residents from 2.06 under existing conditions to 1.99 under the proposal. No significant impacts would be anticipated.

- Up to approximately 192 new residents could move into population clusters within unincorporated Mason County under this alternative. The approximately 41 commissioned officers of the Mason County Sheriff's Department currently serve approximately 43,165 residents which could increase to 43,357 residents under the proposal. The existing ratio of 0.95 commissioned officers per 1,000 residents would not change as a result of this population increase.

Thurston County Site

Construction

Construction activities associated with the proposed *Westside Prison Reception Center* at the Thurston County Site could result in an increased demand for police services during the two year construction period. Service calls could increase during construction due to trespassing, construction site theft, vandalism and traffic incidents due to construction traffic. The construction site would be secured to prevent trespassing, vandalism and to avoid accidents

[18] Byrd, Chief Deputy B. Dean. *Letter to Karen Swenson Regarding Mason County Sheriff's Department*, August 12, 2011.

involving the public. Overall, construction impacts on police services would be short-term and would not be substantial. Existing staffing and equipment are expected to be sufficient to handle increased calls for services associated with construction activities over the buildout period.

Operations

Prison Reception Center

As described in the Methodology discussion above, operations of the proposed prison reception center at the Thurston County Site would be anticipated to result in additional calls for police services from the Thurston County Sheriff's Office, such as responding to incidents outside the secured portion of the *Westside Prison Reception Center* (including car break-ins or traffic accidents in the parking lot) and writing a follow-up incident report when a criminal event occurs within the facility. It is estimated that approximately 20.5 additional calls for police services per year to the *Westside Prison Reception Center* would be anticipated, based on historical averages from the existing Washington Correctional Center which currently houses the reception center function. The number of calls anticipated to be generated from the proposed prison reception center (20.5) would be considerably less than the average of 82 calls per year generated by the Maple Lane Juvenile Detention Facility when it was operational on the site. According to the Thurston County Sheriff's Office[19], the additional calls for service associated with the operations of the proposed prison reception center facility at the site would not result in new significant impacts.

Population Increase

As stated in Section 3.14.1-1, the primary population centers within ten miles of the Thurston County Site include Rochester, Grand Mound and Centralia. Anticipated population increases within these areas (as analyzed in Section 3.9, **Employment, Population and Housing**) and the associated impacts on police services would be as follows:

- Up to approximately 120 new residents could move into the town of Rochester and 36 could move into the town of Grand Mound. The 85 commissioned officers of the Thurston County Sheriff's Office currently serve approximately 126,450 residents which could increase to 126,606 under the proposal. The existing ratio of 0.67 commissioned officers per 1,000 residents would not change as a result of this population increase.

- Up to approximately 360 new residents could move into Centralia under this alternative. The approximately 29 commissioned officers of the Centralia Police Department currently serve approximately 15,430 residents which could increase to 15,790 residents under the proposal. The existing ratio of 1.89 commissioned officers per 1,000 residents would change to 1.83 as a result of this population increase. No significant impacts would be anticipated.

[19] Petrie, Capt. Mike. *Letter to Karen Swenson regarding Thurston County Sheriff's Department*, July 27, 2011.

Summary of Three Site Alternatives

The potential for impacts to police services during construction of the proposed *Westside Prison Reception Center* (i.e. vandalism, construction traffic management) would be the same at any of the three site alternatives. Construction impacts would be temporary and periodic in nature and would not be anticipated to be significant.

Based on historic data of police service calls to the Washington Correctional Center where the existing prison reception center uses are currently housed, approximately 20.5 calls for local law enforcement services per year are anticipated. This small number of service calls is not anticipated to generate significant impacts to law enforcement services at any of the site alternatives.

At each of the site alternatives, potential indirect impacts to law enforcement services associated with population increases from new employment would be dispersed throughout multiple law enforcement agency districts. Population increases within any particular law enforcement agency district would not be anticipated to generate significant impacts.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives but the increased demand for additional long-term prison space would remain. Potential police services impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** – Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts to law enforcement services resulting from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in new law enforcement impacts as the number of offenders incarcerated at the facility would remain the same (1,300).

3. **Additional Long-Term Incarceration Capabilities** – Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for be space as well as the long-term prison space displaced at the WCC by increased prison reception center uses. Depending on the location of the additional long-term incarceration facilities, construction and operations could result in demand for law enforcement services. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts to law enforcement services.

3.14.1.3 Mitigation Measures

No significant adverse impacts to police services are anticipated; therefore, no mitigation is proposed.

3.14.1.4 Significant Unavoidable Adverse Impacts

No significant adverse impacts to police services would be anticipated.

3.14.2 FIRE/EMS SERVICES

This section describes the existing fire and emergency medical services provided in the vicinity of the three site alternatives, an analysis of potential impacts to fire and emergency medical services with construction and operation of the facility; proposed measures to mitigate significant impacts, if any; and, a description of any significant unavoidable adverse impacts to fire/EMS services.

3.14.2.1 Affected Environment

This section provides a description of the existing fire and emergency medical services provided at each of the three alternative sites and population centers within approximately ten miles of the sites; this analysis includes the approximately ten mile radius because a substantial portion of the employees associated with the *Westside Prison Reception Center* are assumed to reside in this area, as analyzed in Section 3.9, **Employment, Population and Housing**. Fire and emergency medical services provided by local agencies typically include services such as fire suppression, basic life support services, advanced life support services, and building/fire code inspections.

Bremerton

Bremerton Site

Information regarding the existing fire response and emergency medical services on and near the Bremerton Site was primarily provided by the South Kitsap Fire and Rescue (SKFR) on July 28, 2011[20].

Fire/EMS service to the Bremerton Site is currently provided by the SKFR. [Although the SKIA area (including the Bremerton Site) was annexed to the City of Bremerton in 2009, SKFR continues to provide fire and emergency medical services to the area through an agreement with the City and Bremerton Fire Department.] The SKFR serves a population of 69,965 people and presently employees 84 career staff and 60 volunteers. The SKFR Headquarters is located at 1974 Fircrest Dr SE in Port Orchard, approximately 9.5 miles northeast of the site.

The SKFR has 16 stations of which Station 16 serves the Bremerton Site. SKFR Fire Station 16 is located at 4057 W State Highway 3, approximately nine miles to the north of the site within the community of Gorst, as shown on **Figure 3.14-1**. Additionally, Mason County Fire Protection District 2, Fire Station 21 (located at 460 NE Old Belfair Highway in Belfair approximately 2.3 miles southwest of the site) and the City of Bremerton Fire Department Station 2 (located at 5005 Kitsap Way in Bremerton approximately 7.8 miles northeast of the site) provide automatic and mutual aid in this area.

- SKFR Fire Station 16 has two career firefighters who are also Emergency Medical Technicians (EMT) on duty at all times. SKFR also utilizes volunteer firefighters, some of which are EMTs.

[20] Senter, Wayne, Fire Chief, SKFR. *Letter to Karen Swenson Regarding South Kitsap Fire and Rescue*, July 28, 2011.

- Mason County Fire Protection District 2 has two career firefighters, one of which is a paramedic and the other is an EMT. Mason County Fire Protection District also utilizes volunteer firefighters, some of which are EMTs.

- The Bremerton Fire Department Station 2 has four career firefighters, one of which is a paramedic.

The *Kitsap County Comprehensive Plan 2007-2012* (2006) established a LOS goal of 0.41 fire units[21],[22] per 1,000 residents. The SKFR currently has 34 fire and emergency units available to serve the population of approximately 69,965 people providing a service level of 0.485 units per 1,000 population. No additional fire or emergency units are assumed to be required to meet the County's LOS goal. The City of Bremerton does not require a development impact fee for fire/emergency medical services.

The average response time for fire protection and emergency medical services for SKFR Station 16 is 13.28 minutes.

Table 3.14.2-1 shows the total dispatched calls from 2006 to 2010 for the area served by SKFR and for the SKIA area where the Bremerton Site is located. Total dispatched calls for the SKFR have averaged 8,782 calls per year over the last five years.

Table 3.14.2-1
SOUTH KITSAP FIRE RESCUE CALLS FOR SERVICE

Year	SKFR Area	Station 16 (Bremerton Site)
2006	9,186	Not available
2007	8,956	1050
2008	9,043	938
2009	8,298	967
2010	8,428	953

Source: South Kitsap Fire Rescue 2010 Annual Report, 2011.

According to SKFR[23], the medic response unit of SKFR Station 16 is due for replacement in 2013; however this project is currently unfunded.

[21] A unit is the combination of vehicle and equipment that responds to a fire or EMS situation, including engines, ladder trucks, water tenders, rescue units, aid cars and ambulances, and rehabilitation units, but not including staff or miscellaneous vehicles.
[22] Because the site is served by SKFR, Kitsap County LOS goals are used for the analysis instead of City of Bremerton standards.
[23] Senter, Wayne, Fire Chief, SKFR. *Letter to Karen Swenson Regarding South Kitsap Fire and Rescue*, July 28, 2011.

Bremerton Site Vicinity

The primary population centers within approximately ten miles of the Bremerton Site include Bremerton, Belfair Port Orchard and the unincorporated areas of Kitsap County located west of Highway 16 and east of Glenwood Road.

- The City of Bremerton is served by the Bremerton Fire Department.
- The town of Belfair is served by the Mason County Fire and Rescue.
- The City of Port Orchard and the unincorporated area of Kitsap County located west of Highway 16/east of Glenwood Road are served by the South Kitsap Fire and Rescue.

Mason County Site

Mason County Site

Information regarding the existing fire response and emergency medical services on and near the Mason County Site was provided by the Mason County Fire District 16 on August 23, 2011[24].

Fire and emergency medical services are provided to the vicinity of the Mason County Site by Mason County Fire District 16 with automatic aid by Mason County Fire Districts 11 and 13. Further, the Mason County Fire District 16 currently provides fire suppression services to the existing Department of Corrections Washington Correctional Center (WCC), which is nearby the Mason County Site. Although Mason County Fire District 16 provides emergency medical services to the area near the WCC, DOC contracts with Mason County Medic One (MCMO), a private medical response company, for emergency medical services and transports.

The Mason County Fire District 16 is an all-volunteer district and currently has 14 volunteer responders. The Mason County Fire District 16 headquarters (Station 1) is located at 4650 W Dayton Airport Road, approximately 2.3 miles southwest of the site. Mason County Fire District 16 has two stations of which Station 1 serves the Mason County Site, as shown on **Figure 3.14-2**. **Table 3.14.2-2** shows the total dispatched calls from 2008 to 2010 for the area served by Mason County Fire District 16. Total dispatched calls for Mason County Fire District 16 have averaged 172 calls per year over the last three years. Mason County Fire District 16 indicated that for the past four years (2007-2010), they have responded to a total of four calls to the WCC including two fire events (interior to the facility) and two hazardous material events (exterior to the facility).

[24] Viyasa, Mark. *Letter to Karen Swenson Regarding the Mason County Fire District 16*, August 23, 2011.

Table 3.14.2-2
MASON COUNTY FIRE DISTRICT 16 CALLS FOR SERVICE

Year	Mason County Fire District 16
2006	Data not available
2007	Data not available
2008	186
2009	171
2010	158

Source: Mason County Fire District 16, 2011.

DOC contracts with MCMO to provide emergency medical services and medical transport services to the existing WCC. Typically, trained WCC staff treats most medical emergencies that occur inside the facility. If the medical emergency requires a hospital transport, WCC staff may provide transportation or MCMO may be utilized for transport services. MCMO, a private emergency response company, has 12 full-time career staff and approximately ten part-time staff. MCMO has two on-duty ambulances that are staffed by a minimum of one Paramedic and one EMT. Crews are assigned to one of three shifts (A-B-C), which work a rotating 56-hour per week schedule. The shifts are 24 hours long. MCMO indicated that they have provided 41 transports in 2009 and 50 transports in 2010 for an average of 45.5 calls per year.

There is an existing Memorandum of Understanding between the DOC and the Mason County Fire District 16 regarding provision of fire suppression services to the WCC. DOC has an existing contract for services with Mason County Medic One regarding provision of emergency medical services to the WCC.

The Mason County Comprehensive Plan has no established level of service standards or response time goals for fire/emergency medical services. Mason County does not require a development impact fee for fire/emergency medical services.

Mason County Site Vicinity

The primary population centers within ten miles of the Mason County Site include Shelton and population clusters within areas of Unincorporated Mason County.

- Fire and emergency medical services are provided to Shelton and population centers within unincorporated Mason County by the Mason County Fire and Rescue Districts 1-16.

Thurston County

Thurston County Site

Information regarding the existing fire response and emergency medical services on and near the Thurston County Site was provided by the West Thurston Regional Fire Authority on July 14, 2011.[25]

[25] Kaleiwahea, Russell. *Letter to Karen Swenson Regarding the West Thurston Regional Fire Authoirty*, July 14, 2011.

Fire and EMS services to the Thurston County Site is currently provided by the West Thurston Regional Fire Authority. The West Thurston Regional Fire Authority currently serves approximately 30,000 residents from four staffed, and two unstaffed, fire stations. The West Thurston Regional Fire Authority Headquarters is located at 10828 Littlerock Rd SW in Olympia, approximately 9.5 miles from the site. Two fire stations currently serve the site as shown on **Figures 3.14-3**:

- Station 1 is located at 18720 Sargent Road SW in Rochester (approximately 2.9 miles from the site) and is staffed around the clock with a minimum of two career firefighters/EMTs along with at least one paramedic. More than half of the time there are two paramedics assigned to this station. Volunteer personnel augment the career staffing daily with as many as four additional personnel in some cases.

- Station 3 is located at 18346 Albany St SW in Rochester (approximately 4.13 miles from the site) and is staffed Monday-Friday during peak hours with no less than two career firefighters/EMTs. This staffing is augmented with volunteers and other career staff during offpeak and weekend hours.

The *Thurston County Comprehensive Plan* does not establish level of service standards for fire response services. Thurston County does not require a development impact fee for fire or emergency medical response services.

The average response time for fire protection and emergency medical services is six minutes out of Station 1 and seven minutes from Station 3. The service delivery goals for both Station 1 and 3 are Initial Company within eight minutes 80 percent of the time for all priority incidents and 15 minutes for non-priority calls.[26]

Table 3.14.2-3 shows the total dispatched calls from 2006 to 2010 for the entire West Thurston Regional Fire Authority service area, and for Fire Stations 1 and 3 that serve the site and for the Thurston County Site (when the Maple Lane Juvenile Facility was operating). Total dispatched calls for the West Thurston Regional Fire Authority have averaged 2,701 calls per year over the last five years. Fire Stations 1 and 3 have averaged 1,579 calls per year. For the Thurston County Site, total dispatched calls have averaged six per year.

Table 3.14.2-3
WEST THURSTON REGIONAL FIRE AUTHORITY CALLS FOR SERVICE

Year	West Thurston Fire Authority	Fire Stations 1 and 3	Thurston County Site (Maple Lane Juvenile Facility)
2006	2,770	1,554	6
2007	2,981	1,601	3
2008	2,724	1,589	8
2009	2,594	1,595	8
2010	2,434	1,557	4

Source: West Thurston Regional Fire Authority, 2011.

[26] West Thurston Regional Fire Authority. *West Thurston Regional Fire Authority Plan 2011-2015,* 2010.

Thurston Site Vicinity

The primary population centers within ten miles of the Thurston County Site include Rochester, Grand Mound and Centralia.

- Fire and emergency medical services are provided to Rochester and Grand Mound by the West Thurston Regional Fire Authority.

- Fire and emergency medical services are provided to Centralia by the Riverside Fire Authority.

3.14.2.2 Impacts

This section summarizes the potential impacts to fire and emergency medical services at the three site alternatives. Impacts to fire and emergency medical services could occur during construction (i.e., during demolition, grading activities and construction of the buildings and infrastructure) and/or operation of the facility (i.e., following site construction when the facility is fully functioning). Impacts could include direct impacts from the prison reception center facility operations as well as indirect impacts from population increases associated with new employment.

Methodology

Prison Reception Center

Fire response services from local jurisdictions would be required in the case of a fire event in both the interior and exterior of the facility. In the case of a fire event within the interior of the facility, fire department personnel would only be permitted inside the facility once conditions were secured. Each DOC facility has an evacuation plan in case of fire or other emergency. Development and maintenance of this evacuation plan at the proposed *Westside Prison Reception Center* would be coordinated with the local fire and emergency medical services providers. Based on historic data from the existing WCC, it is assumed that the proposed *Westside Prison Reception Center* may generate approximately 1 call for fire suppression services per year.

Medical personnel would be employed within the prison reception center facility and would respond to most medical emergencies that may occur inside the facility. Prison reception center staff would treat medical emergencies onsite and, if a hospital transport of an offender or staff member was necessary, the DOC would utilize the services of a either a medical transport company or the local emergency medical services provider. Based on historic data from the existing WCC, it is assumed that the proposed *Westside Prison Reception Center* may generate approximately 45 emergency medical services/transport calls for services per year.

A Memorandum of Understanding would be developed between the Department of Corrections and the local jurisdiction to specify fire and emergency medical response responsibilities and procedures.

Population Increase

As described in Section 3.9, **Employment, Population and Housing**, the 478 new jobs generated by the development of the proposed prison reception center could prompt population increases in both the jurisdiction where the facility is located and other nearby population centers. (See Section 3.9, for additional details). The assumed population increases could result in increased demand for fire or emergency medical services in the jurisdiction where the facility is located and areas within a 10-mile radius of the site. As described in Section 3.9, employees living more than ten miles from the site would also be dispersed over a greater area, and impacts to fire and emergency medical services would not be expected to be significant.

Bremerton Site

Construction

Construction of the proposed *Westside Prison Reception Center* at the Bremerton Site could result in an increased demand for fire and emergency medical services. SKFR service calls could increase during construction due to construction accidents, traffic incidents due to construction traffic and code/safety inspections.

Construction would not be expected to result in any significant population increase from construction workers relocating to the area that would result in increased demand for fire response or emergency medical response, beyond existing levels.

Overall, construction impacts on fire/emergency medical services would be short-term and would not be significant. Existing SKFR staffing and equipment are expected to be sufficient to handle increased service need for onsite constructions services over the 2-year construction period.

Operations

Operations of the proposed *Westside Prison Reception Center* at the Bremerton Site would result in an increased demand for fire and emergency medical services from both operations of the prison reception center facility and from the population increase associated with new employment.

Prison Reception Center

Since SKFR has career firefighters and paramedics and is staffed around the clock, it is assumed that SKFR would provide both fire suppression and emergency medical services to the proposed *Westside Prison Reception Center.* As described in the Methodology discussion above, operations of the proposed prison reception center at the Bremerton Site could be anticipated to result in 1 additional call for fire suppression services and 45 additional calls for emergency medical services/transports per year. The additional 46 calls per year for fire/emergency medical response services generated by the prison reception center would represent a 0.5 percent increase over the average of 8,782 SKFR calls and would not be anticipated to significantly impact the level of service provided by the SKFR.

It is anticipated that a Memorandum of Understanding would be developed between the Department of Corrections and the local fire and emergency medical response provider(s) to specify fire and emergency medical response responsibilities and procedures.

Population Increase

As stated in Section 3.14.2.1, the primary population centers within ten miles of the Bremerton Site include Bremerton, Belfair and Port Orchard. Anticipated population increases within these areas (as analyzed in Section 3.9, **Employment, Population and Housing**) and the associated impacts on fire and emergency medical services would be as follows:

- Up to approximately 252 new residents could move into the City of Bremerton. The Bremerton Fire Department currently serves approximately 41,122 residents which could increase to 41,374 under the proposal. The 0.6 percent population increase would not be assumed to generate significant impacts to fire or emergency medical services.

- Up to approximately 272 residents could move into the Belfair area. The Mason County Fire District 2 currently serves approximately 12,000 residents which would increase to 12,272 under the proposal. The 2.2 percent population increase would not be assumed to generate significant impacts to fire or emergency medical services.

- Up to approximately 180 new residents could move into the town of Port Orchard and up to 132 residents could move into the unincorporated area of Kitsap County located west of Highway 16/East of Glenwood Road. The South Kitsap Fire and Rescue currently serves approximately 69,965 residents which could increase to 70,277 under the proposal. The 0.4 percent population increase within the SKFR district would not be assumed to generate significant impacts to fire or emergency medical services.

Mason County Site

Construction

Construction of the proposed *Westside Prison Reception Center* at the Mason County Site could result in an increased demand for fire suppression services to the Mason County Fire District 16 during construction due to construction accidents, traffic incidents due to construction traffic and code/safety inspections.

Construction would not be expected to result in any significant population increase from construction workers relocating to the area that would result in increased demand for fire response or emergency medical response, beyond existing levels.

Overall, construction impacts on fire/emergency medical services would be short-term and would not be significant. Existing Mason County Fire District 16 equipment are expected to be sufficient to handle increased service need for onsite constructions services over the 2-year construction period.

Operations

Operations of the proposed *Westside Prison Reception Center* at the Mason County Site would result in an increased demand for fire and emergency medical services from both operations of the prison reception center facility and from the population increase associated with new employment.

Prison Reception Center

Similar to the services provided to the existing WCC, it is assumed that Mason County Fire District 16 would provide fire suppression services to the proposed *Westside Prison Reception Center* and Mason County Medic One would provide emergency medical/transport services. As described in the Methodology discussion above, operations of the proposed prison reception center at the Mason County Site could be anticipated to result in 1 additional call for fire suppression services and per year. The additional 1 call per year generated by the prison reception center would represent a 0.5 percent increase over the average of 172 calls per year and would not be anticipated to significantly impact the level of service provided by the Mason County Fire District 16. It is anticipated that a Memorandum of Understanding would be developed between the Department of Corrections and the Mason County Fire District 16 to specify fire and emergency medical response responsibilities and procedures.

As described in the Methodology discussion above, operations of the proposed prison reception center at the Mason County Site could be anticipated to result in 45 additional calls for emergency medical/transport services. DOC would be anticipated to contract with MCMO to provide services to the new facility.

Population Increase

As stated in Section 3.14.2.1, the primary population centers within ten miles of the Mason County Site include Shelton and population clusters throughout unincorporated Mason County. Anticipated population increases within these areas (as analyzed in Section 3.9, **Employment, Population and Housing**) and the associated impacts on fire and emergency medical services would be as follows:

- Up to approximately 288 new residents could move into the City of Shelton. The Mason Fire District #5 currently serves approximately 23,210 residents which could increase to 23,498 under the proposal. The 1.2 percent population increase would not be assumed to generate significant impacts to fire or emergency medical services.

- Up to approximately 192 new residents could move into population clusters throughout unincorporated Mason County. Residents would likely be distributed throughout several fire districts. The relatively small number of new residents in any given fire district would not be assumed to generate significant impacts to fire or emergency medical services.

Thurston County Site

Construction

Construction of the proposed *Westside Prison Reception Center* at the Thurston County Site could result in an increased demand for fire and emergency medical services. West Thurston Regional Fire Authority service calls could increase during construction due to construction accidents, traffic incidents due to construction traffic and code/safety inspections.

Construction would not be expected to result in any significant population increase from construction workers relocating to the area that would result in increased demand for fire response or emergency medical response, beyond existing levels.

Overall, construction impacts on fire/emergency medical services would be short-term and would not be significant. Existing West Thurston Regional Fire Authority staffing and equipment are expected to be sufficient to handle increased service need for onsite constructions services over the 2-year construction period. No significant impacts would be anticipated.

Operations

Operations of the proposed *Westside Prison Reception Center* at the Thurston County Site would result in an increased demand for fire and emergency medical services from both operations of the prison reception center facility and from the population increase associated with new employment.

Prison Reception Center

Since West Thurston Regional Fire Authority has career firefighters and paramedics and is staffed around the clock, it is assumed that this agency would provide both fire suppression and emergency medical services to the proposed *Westside Prison Reception Center.* As described

in the Methodology discussion above, operations of the proposed prison reception center at the Thurston County Site could be anticipated to result in 1 additional call for fire suppression services and 45 additional calls for emergency medical services/transports per year. The additional 46 calls per year for fire/emergency medical response services generated by the prison reception center would represent a 1.7 percent increase over the average of 2,701 calls and would not be anticipated to significantly impact the level of service provided by the West Thurston Regional Fire Authority.

It is anticipated that a Memorandum of Understanding would be developed between the Department of Corrections and the local fire and emergency medical response provider(s) to specify fire and emergency medical response responsibilities and procedures.

Population Increase

As stated in Section 3.14.2.1, the primary population centers within ten miles of the Thurston County Site include Rochester, Grand Mound and Centralia. Anticipated population increases within these areas and the associated impacts on fire and emergency medical services would be as follows:

- Up to approximately 120 new residents could move into the Rochester area and 36 could move into the Grand Mound area. The West Thurston Regional Fire Authority currently serves approximately 30,000 residents which could increase to 30,120 under the proposal. The 0.4 percent population increase would not be assumed to generate significant impacts to fire or emergency medical services.

- Up to approximately 360 residents could move into the City of Centralia. The Riverside Fire Authority currently serves approximately 26,000 residents which could increase to 26,360 under the proposal. The 1.3 percent population increase would not be assumed to generate significant impacts to fire or emergency medical services.

Summary of Three Site Alternatives

The potential for impacts to fire and emergency medical services during construction of the proposed *Westside Prison Reception Center* (i.e. construction accidents, code inspections) would be the same at any of the three site alternatives. Construction impacts would be temporary and periodic in nature and would not be anticipated to be significant.

Based on historic data of fire and emergency medical service calls to the Washington Correctional Center where the existing prison reception center uses are currently housed, approximately 1 calls for fire suppression services and 45 calls for emergency medical services/transports per year are anticipated. This number of service calls is not anticipated to generate significant impacts to fire and emergency medical services at any of the site alternatives.

At each of the site alternatives, potential indirect impacts to fire and emergency medical services associated with population increases from new employment would be dispersed throughout multiple fire districts. Population increases within any particular fire district would not be anticipated to generate significant impacts.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives but the increased demand for additional long-term prison space would remain. Potential fire and emergency medical services impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** - Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts to fire and emergency medical services resulting from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in new fire and emergency medical services impacts as the number of offenders incarcerated at the facility would remain the same (approximately 1,300).

3. **Additional Long-Term Incarceration Capabilities –** Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for be space as well as the displaced long-term prison space displaced at the WCC by increased prison reception center uses. Depending on the location of the additional long-term incarceration facilities, construction and operations could result in fire and emergency medical services. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts to fire and emergency medical services.

3.14.2.3 Mitigation Measures

All Sites

- A Memorandum of Understanding would be developed between the Department of Corrections and the local jurisdiction to specify and clarify fire response and emergency medical services responsibilities and procedures.

3.14.2.4 Significant Unavoidable Adverse Impacts

With implementation of the proposed mitigation measures, no significant impacts would be anticipated.

3.14.3 SCHOOLS

This section describes the existing school system in the vicinity of the three site alternatives, an analysis of potential impacts to schools with construction and operation of the facility; proposed measures to mitigate significant impacts, if any; and, a description of any significant unavoidable adverse impacts to schools.

3.14.3.1 Affected Environment

This section provides a description of the existing school services provided at each of the three alternative sites and population centers within approximately ten miles of the sites; this analysis includes the approximately ten mile radius because a substantial portion of the employees and dependents associated with the *Westside Prison Reception Center* are assumed to reside in this area, as analyzed in Section 3.9, **Employment, Population and Housing**.

Bremerton

Bremerton Site

Information regarding the existing school services on and near the Bremerton Site was primarily provided by the South Kitsap School District on July 18, 2011[27].

The Bremerton Site is located within the South Kitsap School (SKS) District. The SKS District currently serves approximately 9,929 students within its 16 schools/programs, including ten elementary schools (kindergarten through 6th grade), three junior high schools (7-9th grade), one three-year comprehensive high school (grades 10-12), one alternative high school program (Discovery) and the Explorer academy (for families who want to actively participate in their child's educational experience).

In 2010, the SKS District had an enrollment of 9,929 students in grades K-12. This included 5,154 elementary students, 2,294 middle school students and 2,481 high school students.[28] As the site is currently undeveloped, there are currently no students generated from the Bremerton Site. No school facilities are located adjacent or in close proximity to the site.

Table 3.14.3-1 shows district-wide historic enrollment from 2006 – 2010 and the projected enrollment from 2011-2016. Enrollment has been steadily declining over the last five years and is anticipated to continue to decline until 2015 when enrollment is projected to increase.

According to the SKS District *Capital Facilities Plan* (2011), the District anticipates capacity deficiencies for the 2011 – 2016 time period. Projected capacity deficiencies in 2016 could be up to 654 elementary students, 30 junior high students and 122 high school students. In the short-term planning period (2011-2016), the District anticipates meeting these deficiencies through relocating educational programs, making educational service area boundary adjustments and/or acquiring or relocating modular classroom buildings. Additional facilities may be constructed in the long term (2017-2030), if projected enrollment meets forecasts.

[27] LaRose, David. Letter to Karen Swenson regarding South Kitsap School District, July 18, 2011.
[28] South Kitsap School District. *South Kitsap School District 2011-2016 Capital Facilities Plan*, 2011.

Under the Growth Management Act (GMA), cities, towns, and counties are authorized to impose impact fees on new development to help finance certain public facilities, including schools, within their jurisdiction. The City of Bremerton does not impose a school impact fee on new development. Kitsap County does impose a school impact fee but it is only applicable to residential development.

Table 3.14.3-1
SOUTH KITSAP SCHOOL DISTRICT ACTUAL AND PROJECTED ENROLLMENT, 2006-2015

Year	Enrollment	Change in Enrollment from Previous Year
Actual Enrollment		
2006	10,464	
2007	10,337	-127
2008	10,238	-99
2009	10,186	-52
2010	9,929	-257
Projected Enrollment		
2011	9,849	-80
2012	9,807	-42
2013	9,773	-34
2014	9,766	-7
2015	9,813	47

Source: South Kitsap School District 2011-2016 Capital Facilities Plan, 2011.

Bremerton Site Vicinity

The primary population centers within ten miles of the Bremerton Site are the City of Bremerton, the town of Belfair, the City of Port Orchard and the unincorporated area of Kitsap County located west of Highway 16 and east of Glenwood Road.

- The City of Bremerton (north of Gorst) is served by the Bremerton School District.
- The town of Belfair is served by the North Mason School District.
- The City of Port Orchard and the unincorporated area of Kitsap County located west of Highway 16 and east of Glenwood Road are served by the South Kitsap School District.

Mason County Site

Information regarding the existing school services on and near the Mason County Site was provided by the Shelton School District on July 12, 2011[29].

The Mason County Site is located within the Shelton School District (SSD). The SSD currently serves approximately 4,019 students within its seven schools/programs, including three elementary schools (kindergarten through 5th grade), one middle school (6 and 7th grade), one junior high (8th and 9th grade) and two high schools (10-12th grade). No schools are located on or in close proximity to the site.

In 2010, the SSD had an enrollment of 4,019 students in grades K-12. As the site is currently undeveloped, there are currently no students generated from the Mason County Site.

Table 3.14.3-2 shows district-wide historic enrollment from 2006 – 2010 and the projected enrollment from 2011-2016. Enrollment has been steadily increasing since 2009 and is projected to continue to increase through 2015.

Table 3.14.3-2
SHELTON SCHOOL DISTRICT ACTUAL AND PROJECTED ENROLLMENT, 2006-2015

Year	Enrollment	Change in Enrollment from Previous Year
Actual Enrollment		
2006	3,966	
2007	4,009	43
2008	3,982	-27
2009	4,003	21
2010	4,019	16
Projected Enrollment		
2011	4,154	135
2012	4,255	101
2013	4,356	101
2014	not available	not available
2015	not available	not available

Source: Shelton School District 2008 Capital Facilities Plan, 2008.

In 2008, the SSD had capacity deficiencies at the secondary grade levels (net deficiency of permanent and temporary facilities of 314 students). According to the SSD Capital Facilities Plan (2008), the district anticipates continued capacity deficiencies for the 2011 – 2016 time period. Projected capacity deficiencies in 2013 could be up to 130 elementary students, 301 junior high students and 78 high school students. In the short-term planning period (2006-2015), the district anticipates meeting these deficiencies through relocating educational

[29] Nutt, Alison. *Letter to Karen Swenson Regarding the Shelton School District*, July 12, 2011.

programs, making educational service area boundary adjustments and/or acquiring or relocating modular classroom buildings.

Under the Growth Management Act (GMA), cities, towns, and counties are authorized to impose impact fees on new development to help finance certain public facilities, including schools, within their jurisdiction. Mason County does impose a school impact fee but it is only applicable to residential development.

Mason County Site Vicinity

The primary population centers within ten miles of the Mason County Site are the City of Shelton and population clusters within unincorporated Mason County.

- The City of Shelton is served by the Shelton School District.
- The population clusters within unincorporated Mason County are served by Pioneer, Hood Canal, Mary M Knight, Grapeview, North Mason or Southside School Districts.

Thurston County Site

Thurston County Site

Information regarding the existing school services on and near the Thurston County Site was provided by the Rochester School District on July 12, 2011[30].

The Thurston County Site is located within the Rochester School District (RSD). The RSD currently serves approximately 2,126 students within its four schools/programs, including two elementary schools (kindergarten through 5th grade), one middle school (6 and 8th grade), and one high school (9-12th grade).

Some of the existing buildings on the site were formerly used as onsite educational facilities by the Maple Lane Juvenile Detention Facility. These buildings are currently vacant.

In 2010, the RSD had an enrollment of 2,166 students in grades K-12. No students are currently generated from the existing Thurston County Site, as the existing onsite buildings are vacant.

Table 3.14.3-3 shows district-wide historic enrollment from 2006 – 2010 and the projected enrollment from 2011-2016. Enrollment is projected to steadily increase from 2011-2015.

[30] Fry, Kimberly M. *Letter to Karen Swenson Regarding Rochester School District*, July 12, 2011.

Table 3.14.3-3
ROCHESTER SCHOOL DISTRICT ACTUAL AND PROJECTED ENROLLMENT, 2006-2015

Year	Enrollment	Change in Enrollment from Previous Year
Actual Enrollment		
2006	2,074[1]	
2007	2,019[1]	-55
2008	2,099[1]	80
2009	2,088[1]	-11
2010	2,126[1]	38
Projected Enrollment		
2011	2,166[1]	40
2012	2,178[2]	12
2013	2,200[2]	22
2014	2,230[2]	30
2015	2,241[2]	11

Source: [1] Rochester School District 2008 Capital Facilities Plan, 2005 and
[2] Office of the Superintendent of Public Instruction, 2011.

According to the RSD Capital Facilities Plan (2005), the district anticipated capacity deficiencies for the 2005 – 2011 time period. Projected capacity deficiencies in 2011 were anticipated to be up to 907 students comprised of 552 elementary students, 83 junior high students and 272 high school students based on a projected enrollment of 2,705 in 2011. The RSD has since revised the 2011 enrollment projection to 2,166 which would reduce the overall anticipated capacity deficiency to 368 students. In the short-term planning period (2005-2011), the district anticipated meeting these deficiencies through relocating educational programs, making educational service area boundary adjustments and/or acquiring or relocating modular classroom buildings.

Under the Growth Management Act (GMA), cities, towns, and counties are authorized to impose impact fees on new development to help finance certain public facilities, including schools, within their jurisdiction. Thurston County does impose a school impact fee on new development but it is only applicable to new residential development.

Thurston County Site Vicinity

The primary population centers within ten miles of the Thurston County Site are the town of Rochester, the town of Grand Mound, the City of Centralia.

- Rochester and Grand Mound are served by the Rochester School District.
- The City of Centralia is served by the Centralia School District.

3.14.3.2 Impacts

This section summarizes the potential impacts to schools at the three site alternatives. Impacts to schools could occur during construction (i.e., during demolition, grading activities and construction of the buildings and infrastructure) and/or operation of the facility (i.e., following site construction when the facility is fully functioning). Impacts could include direct impacts from prison reception center facility operations as well as indirect impacts from population increases associated with new employment.

Methodology

Prison Reception Center

Local school districts would not provide educational or community services to the prison reception center facility. No residential uses would be developed on the site as part of the proposed *Westside Prison Reception Center*; therefore, no students would be generated from the proposed uses on the site.

Population Increase

As analyzed in Section 3.9, **Employment, Population and Housing**, the 478 new jobs generated by the development of the proposed prison reception center could prompt population increases in both the jurisdiction where the facility is located and other nearby population centers. (See Section 3.9, for additional details). The assumed population increases could result in increased demands for school resources in the jurisdiction where the facility is located and areas within a 10-mile radius of the site. Student generation rates for each identified population cluster area have been calculated by: (1) using the assumed population numbers and distribution analyzed in Section 3.9 of this EIS, (2) determining the number of school age children (5 years to 19 years) within the total population by using multipliers from the US Census data for Washington State, and (3) determining the breakdown of elementary, middle and high school age children based on factors from the Office of the Superintendent of Public Education). As described in Section 3.9, employees living more than ten miles from the site would also be dispersed over a greater area, and impacts to schools would not be expected to be significant.

Bremerton Site

Prison Reception Center

Construction

No school district facilities are located on or proximate to the site. Impacts from construction activities to existing school facilities would not be anticipated.

Operations

Local school districts would not provide educational or community services to the prison reception center facility. No residential uses would be developed on the site as part of the proposed *Westside Prison Reception Center*; therefore, no students would be generated from the proposed uses on the site. No direct impacts to the South Kitsap School District would be anticipated.

Population Increase

As stated in Section 3.14.3.1, the population centers within ten miles of the Bremerton Site include Bremerton, Belfair, Port Orchard and an unincorporated area of Kitsap County west of Highway 16/East of Glenwood Road. Population increases in the areas (as analyzed in Section 3.9, **Employment, Population and Housing**) associated with new employees could result in some increases in student enrollment at schools within ten miles of the site.

- Up to approximately 55 new school-age children could move into the City of Bremerton. The Bremerton School District currently serves approximately 4,833 students which could increase to 4,888 under the proposal. The 1.1 percent student population increase would not be assumed to generate significant impacts to schools.

- Up to approximately 16 new school-age children could move into the Belfair area. The North Mason School District currently serves approximately 2,169 students which could increase to 2,185 under the proposal. The 0.7 percent student population increase would not be assumed to generate significant impacts to schools.

- Up to approximately 39 new school-age children could move into the town of Port Orchard and up to 29 new school-age children could move into the unincorporated area of Kitsap County located west of Highway 16 and East of Glenwood Road. The South Kitsap School District currently serves approximately 9,929 students which could increase to 9,987 under the proposal. The 0.5 percent student population increase would not be assumed to generate significant impacts to schools.

Mason County Site

Prison Reception Center

Construction

No school district facilities are located on or proximate to the site. Impacts from construction activities to existing school facilities would not be anticipated.

Operations

Local school districts would not provide educational or community services to the prison reception center facility. No residential uses would be developed on the site as part of the proposed *Westside Prison Reception Center*; therefore, no students would be generated from

the proposed uses on the site. No direct impacts to the Shelton School District would be anticipated.

Population Increase

As stated in Section 3.14.3.1, the population centers within ten miles of the Mason County Site include Shelton and population clusters within unincorporated Mason County. Population increases in the areas (as analyzed in Section 3.9, **Employment, Population and Housing**) associated with new employees could result in some increases in student enrollment at schools within ten miles of the site.

- Up to approximately 63 new students could move into the City of Shelton. The Shelton School District currently serves approximately 4,019 students residents which could increase to 4,082 under the proposal. The 1.5 percent population increase would not be assumed to generate significant impacts to the school district.

- Up to approximately 49 new students could move into population clusters in unincorporated Mason County under this alternative. Students would likely be distributed throughout several school districts. The relatively small number of new students in any given school district would not be assumed to generate significant impacts to schools.

Thurston County Site

Prison Reception Center

Construction

Three schools are located approximately 0.5 miles from the Thurston County Site including: Grand Mound Elementary (7710 James Rd, Rochester); Rochester Primary School (7440 James Rd, Rochester); and Rochester High School (19800 Carper Rd, Rochester). Given the distance between the Thurston County Site and the schools in the area, along with construction measures to limit noise, dust and truck traffic during the short-term construction period, significant impacts from construction activities to existing school facilities would not be anticipated.

Operations

Local school districts would not provide educational or community services to the prison reception center facility. No residential uses would be developed on the site as part of the proposed *Westside Prison Reception Center*; therefore, no students would be generated from the proposed uses on the site. No direct impacts to the Rochester School District would be anticipated.

Population Increase

As stated in Section 3.14.3.1, the population centers within ten miles of the Thurston County Site include Rochester, Grand Mound and Centralia. Population increases in the areas (as

analyzed in Section 3.9, **Employment, Population and Housing**) associated with new employees could result in some increases in student enrollment at schools within ten miles of the site.

- Up to approximately 26 new school-age children could move into the Rochester and eight could move into Grand Mound. The Rochester School District currently serves approximately 2,150 students which could increase to 2,184 under the proposal. The 1.6 percent student population increase would not be assumed to generate significant impacts to schools.

- Up to approximately 79 new school-age children could move into the City of Centralia. The Centralia School District currently serves approximately 3,432 students which could increase to 3,511 under the proposal. The 2.3 percent student population increase would not be assumed to generate significant impacts to schools.

Summary of Three Site Alternatives

The *Westside Prison Reception Center* does not include residential uses and no students would be directly associated with any of the sites.

Neither the Bremerton or Mason County Sites have schools located on or in close proximity to the sites and development of the *Westside Prison Reception center* on these sites would not be anticipated to result in construction impacts to existing school facilities. Three public schools are located within approximately two miles of the Thurston County Site; given the distance of the schools from the site and implementation of identified construction phase mitigation measures, significant impacts to existing school facilities would not be anticipated.

At each of the site alternatives, potential indirect impacts to schools associated with population increases from new employment would be dispersed throughout multiple school districts. Population increases within any particular district would not be anticipated to generate significant impacts.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives but the increased demand for additional long-term prison space would remain. Potential school impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** - Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts to schools resulting from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The

change of use at the WCC associated with the No Action Alternative would not be anticipated to result in new schools impacts as the number of offenders incarcerated at the facility would remain the same (1,300).

3. **Additional Long-Term Incarceration Capabilities –** Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for be space as well as the displaced long-term prison space displaced at the WCC by increased prison reception center uses. Depending on the location of the additional long-term incarceration facilities, construction and operations could result in schools impacts. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts to schools.

3.14.3.3 Mitigation Measures

No significant impacts to schools would be anticipated; therefore, no mitigation measures are proposed.

3.14.3.4 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts to schools would be anticipated.

3.14.4 PARKS AND RECREATION

This section describes the existing parks and recreation facilities on and in the vicinity of the three site alternatives, an analysis of potential impacts to parks and recreation facilities with construction and operation of the facility; proposed measures to mitigate significant impacts, if any; and, a description of any significant unavoidable adverse impacts to parks and recreation facilities.

3.14.4.1 Affected Environment

This section provides a description of the existing parks and recreation services provided at each of the three alternative sites and population centers within ten miles of the sites; this analysis includes the approximately ten mile radius because a substantial portion of the employees and dependents associated with the *Westside Prison Reception Center* are assumed to reside in this area.

Bremerton

Bremerton Site

No public or private parks or recreational facilities are presently located on the site. The site is currently vacant.

The City of Bremerton and Kitsap County own and maintain public parks in the area of the City of Bremerton and Kitsap County where the site is located. The City of Bremerton does not impose a parks impact fee on new development. Kitsap County does impose a parks impact fee but it is only applicable to residential development.

No public or private parks or recreational facilities are presently located immediately adjacent to the site or within 0.5 miles. The closest recreational facility/area to the site is the 1,195-acre Kitsap County Coulter Creek Heritage Park located approximately 2.5 miles east of the site.

Bremerton Site Vicinity

The primary population centers within ten miles of the Bremerton Site are the City of Bremerton, the town of Belfair, the City of Port Orchard and the unincorporated area of Kitsap County located west of Highway 16/east of Glenwood Road.

- Parks and open spaces resources in the City of Bremerton are owned and maintained by the city.
- Parks and open spaces resources in the town of Belfair are owned and maintained by Mason County.
- Parks and open spaces resources in the City of Port Orchard are owned and maintained by the city.

- Parks and open space resources in the unincorporated area of Kitsap County located west of Highway 16/east of Glenwood Road are owned and maintained by Kitsap County.

Mason County

Mason County Site

No public or private parks or recreational facilities are presently located on the site. The site is currently vacant.

The City of Shelton and Mason County own and maintain public parks in the area of Mason County where the site is located. Mason County does not impose a parks impact fee.

No public parks or recreational facilities are presently located immediately adjacent to the site or within 0.5 miles. A private race track is currently under construction and is located approximately 0.5 miles to the northwest of the site.

Mason County Site Vicinity

The primary population centers within ten miles of the Mason County Site are the City of Shelton and population clusters within unincorporated Mason County.

- Parks and open spaces resources in the City of Shelton are owned and maintained by the city.

- Parks and open spaces resources in the unincorporated Mason County are owned and maintained by the county.

Thurston County

Thurston County Site

No public recreational facilities are presently located on the site. The site is currently occupied by buildings associated with the closed Maple Lane Juvenile Facility. Onsite recreational facilities formerly used by offenders include an indoor swimming pool facility, outdoor (fenced) basketball court and indoor gymnasium; these recreational facilities were not available for use by the general public.

Thurston County owns and maintains public parks within the area of Thurston County where the site is located. Thurston County does not impose a parks impact fee on new development.

The Grand Mound Driving Range is located immediately adjacent to the southeast of the site (east of Prairie Creek). No other public or private parks or recreational facilities are presently located immediately adjacent to the site or within 0.5 miles.

Thurston County Site Vicinity

The primary population centers within ten miles of the Thurston County Site are the town of Rochester, the town of Grand Mound, and the City of Centralia.

- Parks and open spaces resources in Rochester and Grand Mound are owned and maintained by the county.

- Parks and open spaces resources in the City of Centralia are owned and maintained by the city.

3.14.4.2 Impacts

This section summarizes the potential impacts to parks and open space resources at the three site alternatives. Impacts could occur during construction (i.e., during demolition, grading activities and construction of the buildings and infrastructure) and/or operation of the facility (i.e., following site construction when the facility is fully functioning). Impacts could include direct impacts from prison reception center facility operations as well as indirect impacts from population increases associated with new employment.

Methodology

Prison Reception Center

No parks and recreational facilities would be provided onsite external to the facility. Outdoor recreational areas would be provided internal to the prison reception center facility for offender use.

Population Increase

As described in Section 3.9, **Employment, Population and Housing**, the 478 new jobs generated by the development of the proposed prison reception center could prompt population increases in both the jurisdiction where the facility is located and other nearby population centers. (See Section 3.9, for additional details). The assumed population increases could result in increased demand for parks and open space resources in the jurisdiction where the facility is located and areas within a ten mile radius of the site. As described in Section 3.9, employees living more than ten miles from the site would also be dispersed over a greater area, and impacts to parks and open space resources would not be expected to be significant.

Bremerton Site

Prison Reception Center

Construction

Development of the prison reception center on the Bremerton Site would not displace any existing parks and open space resources. As no existing parks and open space resources are

located in close proximity to the site, construction activities would not impact existing nearby parks and open space resources.

Operation

No public parks or open space resources would be provided onsite external to the facility. Outdoor recreational areas would be provided internal to the prison reception center facility for offender use.

Increases in on-site population due to on-site employees and visitors to the prison reception center would not be expected to significantly increase demands on local and regional parks and recreational facilities.

Population Increase

Population increases associated with new employees could result in some increases in utilization of parks and open space resources within ten miles of the site. The existing city, county and state park and open spaces resources would be anticipated to accommodate the relatively small population increase anticipated in areas within ten miles of the Bremerton Site. No significant impacts would be anticipated.

Mason County Site

Prison Reception Center

Construction

Development of the prison reception center on the Mason County Site would not displace any existing parks and open space resources. Construction activities would not impact the private race track (currently under construction) located 0.5 miles northwest of the site due to distance, intervening uses and topography.

Operation

No public parks or open space resources would be provided onsite external to the facility. Outdoor recreational areas would be provided internal to the prison reception center facility for offender use.

Increases in on-site population due to on-site employees and visitors to the prison reception center would not be expected to significantly increase demands on local and regional parks and recreational facilities.

Population Increase

Population increases associated with new employees could result in some increases in utilization of parks and open space resources within ten miles of the site. The existing city, county and state park and open spaces resources would be anticipated to accommodate the

relatively small population increase anticipated in areas within ten miles of the Mason County Site. No significant impacts would be anticipated.

Thurston County Site

Prison Reception Center

Construction

Development of the prison reception center on the Thurston County Site would not displace any existing parks and open space resources.

Clearing, grading demolition and other construction activities associated with redevelopment of the Thurston County site would result in periodic increases in dust and noise levels, which could affect users of the adjacent Grand Mound Driving Range. These impacts would be temporary and periodic in nature, be mitigated in accordance with Thurston County requirements for construction mitigation, and would not, therefore, be anticipated to be significant.

Operation

No public parks or open space resources would be provided onsite external to the facility. Outdoor recreational areas would be provided internal to the prison reception center facility for offender use.

Increases in on-site population due to on-site employees and visitors to the prison reception center would not be expected to significantly increase demands on local and regional parks and recreational facilities.

Population Increase

Population increases associated with new employees could result in some increases in utilization of parks and open space resources within ten miles of the site. The existing city, county and state park and open spaces resources would be anticipated to accommodate the relatively small population increase anticipated in areas within ten miles of the Thurston County Site. No significant impacts would be anticipated.

Summary of Three Site Alternatives

The potential for impacts to parks and open spaces resources during construction of the proposed *Westside Prison Reception Center* (i.e. dust and noise) at the Mason and Bremerton Sites would be unlikely due to the distance and intervening uses between the sites and the nearest parks and open space uses. At the Thurston County Site, onsite construction activities could impact the adjacent driving range. Impacts would be temporary and periodic in nature and would not be anticipated to be significant.

Increases in on-site population due to on-site employees and visitors to the prison reception center would not be expected to significantly increase demands on local and regional parks and recreational facilities at any of the sites.

At each of the site alternatives, potential indirect impacts to parks and open space resources associated with population increases from new employment would be dispersed throughout multiple jurisdictions. Population increases within any particular jurisdiction would not be anticipated to generate significant impacts.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives but the increased demand for additional long-term prison space would remain. Potential impacts to parks and open space resources associated with the No Action Alternative would be as follows:

1. **Site Alternatives** - Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts to parks and open space resources resulting from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in new parks and open space resources impacts as the number of offenders incarcerated at the facility would remain the same (1,300).

3. **Additional Long-Term Incarceration Capabilities –** Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for be space as well as the displaced long-term prison space displaced at the WCC by increased prison reception center uses. Depending on the location of the additional long-term incarceration facilities, construction and operations could result in law enforcement services. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts to parks and open space resources.

3.14.4.3 Mitigation Measures

No significant impacts would be anticipated; therefore, no mitigation measures are proposed.

3.14.4.4 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts would be anticipated.

3.15 UTILITIES

This section describes the existing utilities (water, sewer, stormwater, natural gas, electricity, and telecommunications) on and in the vicinity of the three site alternatives. Potential impacts to utilities with operation of the proposed *Westside Prison Reception Center* are analyzed. This section is based on a Utilities Technical Report prepared by AHBL (2011) and an Energy and Resources Technical Report prepared by MW Consulting Engineers (2011) that are contained in **Appendix I** and **E,** respectively, to this Draft EIS.

3.15.1 Affected Environment

Bremerton Site

The Bremerton Site is presently undeveloped. The site is vegetated with trees and has been previously logged. The topography in the site is slightly sloping, with the highest elevation at 440 feet near the northeast corner, and the lowest point at 350 feet near the northwest corner.

Soil conditions have been determined to primarily consist of glacial till with possibly some areas of recessional outwash. Glacial till and recessional outwash soil types have been found to have properties that are generally favorable for site development if placed in proper conditions. Engineering properties of glacial till soils is not supportive of infiltration of stormwater.

Water

The City of Bremerton is the purveyor of water utilities to properties within its boundary, including the Bremerton Site. Currently, there is no water service provided to this site. The nearest water service connection is approximately 2.2 miles from the site on SR 3 near the Bremerton Airport. The City has three wells that provide 1,224,000 gallons per day (gpd). The current peak demand is 550,000 gpd. The City also maintains a booster fire pump system. This site falls within the SKIA boundary, and therefore water infrastructure improvements would be required to follow the SKIA Subarea Plan.

Sanitary Sewer

The City of Bremerton is the purveyor of sanitary sewer utilities to properties within its boundary, including the Bremerton Site. Currently, there are no sanitary sewer services provided to this site, and there are no planned improvements near the site. The City of Bremerton's main waste water treatment plant in Gorst has capacity to accept waste water from the *Westside Reception Center*. However, the plant is located 9 miles away. The nearest sanitary sewer line is located approximately 5.3 miles from the site to the north near the Olympic Industrial Park owned by the Port of Bremerton. At this location there are two sewage lagoons providing 72,500 gpd of treatment capacity. The current demand at this facility is 27,000 gpd. The Bremerton Site falls within the SKIA boundary, and therefore any sewer infrastructure improvements on the site would be required to follow the Sewer Urban Growth Area Planning - SKIA document.

Stormwater

The City of Bremerton is the purveyor of storm utilities to properties within its boundary, including the Bremerton Site. Currently, there is no storm service provided to this site and there are no planned improvements near the site. The natural drainage is sheet flow to the south to undeveloped properties. This site falls within the SKIA boundary, which has an emphasis on using Low Impact Development strategies. This can be difficult on a site with glacial till soils.

Natural Gas

The natural gas service purveyor for the Bremerton Site is Cascade Natural Gas. There is currently no natural gas service provided to the site. The natural gas service connection is approximately one mile from the site to the southwest on Lake Flora Road. Cascade Natural Gas has stated that their gas supply is not currently sufficient to provide uninterruptible gas service for the *Westside Prison Reception Center*.

Electrical

Puget Sound Energy (PSE) is the electrical utility service provider for the Bremerton Site. The existing Bremerton Site does not currently contain any electrical service infrastructure that would be appropriate to provide electrical utility service for the *Westside Prison Reception Center*. An existing utility right-of-way that could accommodate electrical utility currently exists along State Route 3.

Telecommunications

The existing Bremerton Site does not currently contain any telecom service infrastructure that would be appropriate to provide telecom utility service to for the *Westside Prison Reception Center*. An existing utility right-of-way that could accommodate telecom infrastructure currently exists along State Route 3.

Mason County Site

The Mason County Site is currently undeveloped. The site is vegetated with trees and has been previously logged for timber. The topography of the site is generally level, with the highest elevation at 340 feet near the southeast corner, and the lowest point at 300 feet near the northwest corner.

Soil conditions have been determined to primarily consist of Grove gravelly sandy loam soils over most of the site, and Lystair loamy soils in the northeast corner of the site. These soil types have been found to have properties that are generally favorable for site development if placed in proper conditions. Engineering properties of Grove and Lystair soils is generally supportive of infiltration of stormwater if ground water does not inhibit the infiltration characteristics.

Water

The City of Shelton is the purveyor of water utilities to the Mason County Site. The City currently has adequate water rights to accommodate the next 20 years of planned development. Current demand is approximately 1,250,000 gpd. A 1.3 million gallon reservoir is included in the

City's 6-year Capital Improvement Projects. Water service is currently planned to be extended to the Washington State Patrol property approximately one mile from the site. This service extension has been designed but is not funded.

Sanitary Sewer

The City of Shelton is the purveyor of sanitary sewer utilities to the Mason County Site. Currently, sanitary sewer service is provided to the proximity of the site on SR 102, consisting of pressure sewer main that is capable of accepting wastewater from the new *Westside Prison Reception Center*. Sewage is treated via a Water Reclamation Plant. At this time, the plant is operating at roughly 50 percent of the 400,000 gpd plant capacity. The Washington Correctional Center (WCC), just southwest of the site, has a Utility Services Agreement with the City for an average annual flow of 200,000 gpd. The combined flow from the *Westside Prison Reception Center* and WCC would exceed the available agreement capacity of 200,000 gpd. Once the treatment plant reaches 85 percent of its capacity, a design of an expansion is required. This project would not put the treatment plant over 85 percent capacity,

Stormwater

Currently, there is no storm service provided to this site other than natural drainage courses and there are no planned improvements near the site. The natural drainage is infiltration on the site.

Natural Gas

The natural gas service purveyor for the Mason County Site is Cascade Natural Gas. Natural gas service is currently provided to the proximity of the site on SR 102. Cascade Natural Gas has stated that their gas supply is not currently sufficient to provide uninterruptible gas service for the *Westside Prison Reception Center*.

Electrical

Mason County PUD No. 3 (PUD3) is the electrical utility service provider for the Mason County Site. The Mason County Site does not currently contain any electrical service infrastructure that would be appropriate to provide electrical utility service for the *Westside Prison Reception Center*. An existing utility right-of-way that could accommodate electrical utility currently exists along SR 102.

Telecommunications

The Mason County Site does not currently contain any telecom service infrastructure that would be appropriate to provide telecom utility service for the *Westside Prison Reception Center*. An existing utility right-of-way that could accommodate telecom utility currently exists along SR 102.

Thurston County Site

The Thurston County Site is developed with multiple structures associated with the Maple Lane Juvenile Detention Facility that formerly occupied the site. Approximately 32 buildings, totaling approximately 240,000 square feet in building area, are currently located on the site. A staff parking lot accommodating approximately 200 parking spaces is located in the central portion of the site, outside the perimeter fencing. Trees are located around the perimeter of the site, along the main entrance driveway, and around some interior buildings. Primary vehicular access to the site is from Old Highway 9 SW.

The topography in the site is generally level, with the highest elevation at 162 feet near the northern corner, and the lowest point at 160 feet near the southern boundary. There is an approximate 25-foot elevation change between the southern boundary of the site and offsite wetlands and floodplain associated with Prairie Creek.

Soil conditions have been determined to primarily consist of Spanaway gravelly sandy loam soils. Spanaway gravelly sandy loam soil types have been found to have properties that are generally favorable for site development if placed in proper conditions. Engineering properties of Spanaway gravelly sandy loam soil is generally supportive of infiltration of stormwater if groundwater does not inhibit the infiltration characteristics.

Water

Thurston County is the purveyor of water utilities to the Thurston County Site. Currently, two onsite water wells and above ground tanks supply the site with domestic water and fire protection water, but do not have the capacity to supply the new *Westside Prison Reception Center*. The closest public water supply connection is 1.4 miles from the site, located to the southeast on Old Highway 99. The City has capacity to provide 1,300,000 gpd. The current peak demand is approximately 400,000 gpd. There are no planned improvements near the site.

Sanitary Sewer

Public sewer utilities are currently provided to the site as a vacuum system. The existing Thurston County Wastewater Treatment Plant is nearly at its capacity of 380,000 gpd and does not have capacity to accept waste water from the *Westside Prison Reception Center* without expansion. Thurston County plans a future expansion of the wastewater treatment plant to 760,000 gpd.

Stormwater

There is an existing storm system on the site that consists of some open infiltration areas, and a catch basin and pipe collection system that outfall to the hillside above the wetlands.

Natural Gas

The natural gas service purveyor for the site is Puget Sound Energy (PSE). Natural gas service is currently provided to the site. PSE has stated that their gas supply is not sufficient to provide uninterruptible gas service for the *Westside Prison Reception Center*.

Electrical

Puget Sound Energy (PSE) is the electrical utility service provider for this site. The Thurston County Site has an existing 12.5kV primary metering point of service from PSE. Based on current PSE distribution system capacity, it is estimated by PSE that their existing distribution system would be sufficient to meet the electrical requirement of the *Westside Prison Reception Center*.

Telecommunications

The Thurston County Site currently contains a small telecom service system, which in not adequately sized to support the telecom needs of the *Westside Prison Reception Center*. Additional existing telecom infrastructure is available for use at the adjacent utility right-of-way along Old Highway 9.

3.15.2 Impacts

This section summarizes the potential impacts to water, sanitary sewer, stormwater, natural gas, electrical and telecommunications facilities associated with construction and operation of the proposed *Westside Prison Reception Center* at the three alternative sites. This section starts with operational demands associated with the *Westside Prison Reception Center* followed by discussions on utility conditions associated with the individual sites.

All Sites

The levels of utility demand associated with operation of the *Westside Prison Reception Center* (i.e., water, sanitary sewer, natural gas, electrical and telecommunications) would be similar for all three sites, as follows:

Water

- Peak domestic flow of 179,200 gallons per day (gpd)
- Fire flow of 360,000 gallons

Sanitary Sewer

- Peak flow of 128 gallons per minute (gpm)
- Daily flow of 92,160 gallons

Natural Gas

- Gas consumption of 35,445,397 kbtuh/year (Bremerton and Mason County Sites)/42,315,849 kbth/year (Thurston County Sites)
- Peak Demand Requirements for equipment sizing of 26,560,000 btu/hr (Bremerton and Mason County Sites)/48,260,000 btu/hr (Thurston County Site)

Electrical

- 12.5kV primary metering / utility demarcation point

- 7 megawatt (MW) NEC calculated load
- 3.5 MW average running load

Telecommunications

- Up to 300 cable TV locations
- One telephone service to support 200 voice pairs (assume 600 Administrative Telephone desksets)
- Second telephone service to support 50 voice pairs (Inmate Telephone)
- Single-mode optical fiber service consisting of a minimum 12-strands with a minimum capacity of (10 Gb/s)
- 1 Gb/s data transport capability
- 100Mb/s Internet Service capability

Bremerton Site

Water

As indicated above, the *Westside Prison Reception Center* would require a peak domestic flow of 179,200 gpd and a fire flow of 360,000 gallons. The City of Bremerton water system has a capacity of 1,224,000 gpd and a current peak demand of 550,000 gpd. Therefore, the City system has capacity to serve the prison reception center at this site. To provide a domestic water service and fire protection water to this site, the City of Bremerton has indicated that the DOC would need to construct approximately 3.2 miles of 12-inch ductile iron water main along SR 3 and Lake Flora Road to the site. In addition, the City of Bremerton has indicated that the DOC may need to construct a new booster pump and a 0.5 million gallon reservoir in association with the water main extension. Construction of the offsite water main would require a stream crossing of the Union River.

Onsite improvements would likely consist of an 8-inch or 10-inch water main loop with fire hydrants to provide fire protection.

Sanitary Sewer

The *Westside Prison Reception Center* would require a peak flow of 128 gallons per minute (gpm) and daily flow of 92,160 gallons. The City treatment lagoons in the vicinity of the project site do not have capacity for the *Westside Prison Reception Center*. To provide a new sanitary sewer service to this site, the City of Bremerton has stated that DOC would need to construct two pump stations, approximately 1.3 miles of 8-inch force main along SR 3, 0.85 mile of 8-inch gravity main on Port of Bremerton property, an MBR treatment facility on Port of Bremerton property near the Olympic Industrial Park, and one mile of 8-inch reclaimed water force main on Port of Bremerton property. Construction of the offsite sewer facilities may require two stream crossings (refer to Section 3.3, **Plants, Animals, Habitat and Surface Water Resources**, for detail on critical areas).

Onsite improvements would likely consist of an 8-inch gravity main that would connect to the new offsite extension on Lake Flora Road.

Stormwater

Storm drainage improvements associated with the *Westside Prison Reception Center* to mitigate for new impervious surfaces on this site would be designed to meet the Washington State Department of Ecology (DOE) 2005 *Stormwater Management Manual for Western Washington (SMMWW)*, as applied by the City of Bremerton.

Because the onsite soils are generally not supportive for infiltration of stormwater, flow control would utilize open ponds that would temporarily store stormwater from the site while releasing at a controlled rate to the site's natural discharge location(s). Underground detention pipe is an alternative if needed due to the potential of wildlife hazards from the ponds in relation to the flight paths from the nearby airport. The natural discharge location downstream of this site is Lider Lake, which does not appear to have any natural outfall.

Water quality of stormwater from areas subject to vehicular traffic would be provided with the use of wetponds, biofiltration, media filter drains, or other methods, as accepted by the City of Bremerton.

Sustainable design elements such as rain gardens and porous pavement would likely be incorporated into the design, as this site falls within the SKIA, which has an emphasis on using Low Impact Development strategies.

Somewhat depending on the required offsite road improvements for SR 3 or Lake Flora Road, the downstream road side ditches would be improved to accept stormwater discharge from the onsite detention ponds.

Natural Gas

The primary source of heating for the *Westside Prison Reception Center* on the Bremerton Site would be provided by natural gas. Space heating would be provided from either high efficiency gas fired boilers or gas fired ventilation units. Natural gas would also be utilized for heating of domestic hot water. Domestic hot water would be provided from high efficiency gas fired boilers.

Preliminary estimates of gas consumption and peak demand requirements are provided in the All Sites portion of this section. Approximately 39 percent of the gas consumption would be for heating purposes, while the remaining 61 percent would be for non-heat, or domestic, uses.

Cascade Natural Gas had indicated that due to previous commitments for gas delivery that they would service the Bremerton Site from an interruptible supply which means that when/if gas supplies are at the maximum delivery rate, gas would be curtailed for this site. During times of curtailment from the utility company, the facility heating systems would switch to propane as a back-up fuel from on-site storage tanks.

Electrical

The largest consumptions of electrical power from the *Westside Prison Reception Center* would be for lighting, building fans, refrigeration equipment supporting the kitchen and receptacle loads for office type equipment. The facility would be used and operated 24 hours per day but

the facility would have its highest usage at staff and visitor hours during the day shifts which occur between 7:00 AM and 5:00 PM.

Anticipated electric consumption is expected to be in the rage of 6,600,000 kWh per year. The preliminary calculated power demand is 7 megawatt (MW) and the anticipated running load is expected to be in the 3.5 MW range. The prison reception center would be provided with a back-up emergency generator to maintain operations in the event of a power outage.

The conservatively estimated demand of 12.5kV primary metering/utility demarcation point, calculated load of 7 MW and average running load of 3.5 MW could be made available for the Bremerton Site. In order to provide a new 12.5kV electrical service to the Bremerton Site, PSE would be required to rebuild the existing SIN-25 medium voltage utility distribution feeder along SR 3 to create a double circuit configuration for a distance of approximately 3.25 miles. This would provide a new dedicated feeder to the *Westside Prison Reception Center* site, which would result in a reliable electrical service. PSE would also need to upgrade the existing Sinclair Inlet substation in order to support the estimated load of the *Westside Prison Reception Center*. DOC would be responsible for funding these improvements. It is currently anticipated that all electrical utility distribution system upgrades would be performed by utilizing existing overhead utility infrastructure, existing utility structures, and existing utility right-of-ways.

Telecommunications

Based upon the information received from the telecom utility service providers, the necessary utility service requirements outlined in the All Sites portion of this section could be provided to the Bremerton Site.

In order to provide new telecom service to this site, Kitsap Public Utility District (KPUD) in conjunction with NoaNet would extend a new 12-strand single mode fiber optic cable and 200 pair copper cabling the KPUD right-of-way to the Bremerton Site and extended into the telecommunications demarcation point within the Prison Reception Center. DOC would be responsible for funding these improvements. It is currently anticipated that all telecom utility distribution system upgrades would be performed by utilizing existing overhead utility infrastructure, existing utility structures, and existing utility right-of-ways.

Mason County Site

Water

The *Westside Prison Reception Center* would require a peak domestic flow of 179,200 gpd and a fire flow of 360,000 gallons. The City of Shelton water system has capacity to serve this site. In order to provide domestic water and fire protection water service to this site, the City of Shelton would require DOC to construct approximately 1.2 miles of 12-inch ductile iron water main along West Dayton Airport Road (SR 102) from the Washington State Patrol (WSP) offices to the site. Currently, there are plans for a 2-mile water main extension to extend water to the WSP, but funds have not yet been obtained to construct this portion. DOC would be required to fund and construct this water main extension if the current project fails to get funding.

Onsite improvements would likely consist of an 8-inch or 10-inch water main loop with fire hydrants to provide fire protection. The onsite loop would connect to the new water main in West Dayton Airport Road (SR 102).

Sanitary Sewer

The *Westside Prison Reception Center* would require a peak flow of 128 gpm and daily flow of 92,160 gallons. The City of Shelton treatment plant has capacity for the *Westside Prison Reception Center.* In order to provide a sanitary sewer service to this site, an 8-inch gravity main would need to be constructed onsite, as well as a pump station to connect to the existing force main located within West Dayton Road (SR 102) near the north property line.

The City of Shelton requires the design of an expansion of the wastewater treatment plant when the treatment plant reaches 85% capacity. This project will not cause the plant to reach 85% capacity.

Stormwater

Storm drainage improvements to mitigate for new impervious surfaces would be designed to meet the Washington State DOE 1992 *Stormwater Management Manual for the Puget Sound Basin*, as applied by Mason County. The 2005 *SMMWW* is expected to be adopted by Mason County in 2012.

The onsite soils are generally supportive for infiltration of stormwater if ground water does not inhibit the infiltrative characteristics. Flow control would utilize a combination of open infiltration ponds, swales, and possibly infiltration pipe that would temporarily store stormwater from the site while releasing to the subsurface soils. The depth to ground water has not yet been established. If ground water elevations are determined to be at an elevation that will inhibit infiltration, detention pond(s) or tanks may be necessary to temporarily store storm water while releasing to the downstream drainage features at a pre-determined rate. Alternately, the building and site improvements could be constructed at higher elevations that may allow more flexibility with infiltration.

Water quality of stormwater from areas subject to vehicular traffic would be provided with the use of wetponds, biofiltration, media filter drains, or other methods as accepted by Mason County.

To control stormwater on this site, a wet pond and an infiltration pond would need to be constructed to provide water quality and flow control, respectively.

Sustainable design elements such as rain gardens and porous pavement would likely be incorporated into the design.

Natural Gas

As with the Bremerton Site, the primary source of heating for the *Westside Prison Reception Center* on the Mason County Site would be provided from natural gas. Space heating would be provided from either high efficiency gas fired boilers or gas fired ventilation units. Natural gas would also be utilized for heating of domestic hot water. Domestic hot water would be provided from high efficiency gas fired boilers.

Preliminary estimates of gas consumption and peak demand requirements for the Mason County Site are provided in the All Sites portion of this section. Approximately 39 percent of the gas consumption would be for heating purposes, while the remaining 61 percent would be for non-heat, or domestic, uses.

As with the Bremerton Site, Cascade Natural Gas had indicated that due to previous commitments for gas delivery that they would service the Mason County Site from an interruptible supply, which means that when/if gas supplies are at the maximum delivery rate, gas would be curtailed for this site. During times of curtailment from the utility company, the facility heating systems would switch to propane as a back-up fuel from on-site storage tanks.

Electrical

The necessary utility service (load) requirements (NEC calculated load of 7MW and average running load of 3.5MW) can be made available for the Mason County Site.

In order to provide a new 12.5kV electrical service to this site, Mason County PUD No. 3 (PUD3) would construct a new distribution substation on property that PUD3 currently owns at the intersection of Dayton-Airport Road and Shelton-Matlock Road. This new substation would be located approximately 2.85 miles away from the proposed *Westside Prison Reception Center* on the Mason County Site. In addition to constructing a new substation, PUD3 would install a new dedicated feeder from the new distribution substation to the *Westside Prison Reception Center* site, which would result in a reliable electrical service. DOC would be responsible for funding these improvements. It is currently anticipated that all electrical utility distribution system upgrades would be performed by utilizing existing overhead utility infrastructure, existing utility structures, and existing utility right-of-ways.

Telecommunications

Based upon the information received from the telecom utility service providers, the necessary utility service requirements outlined in the All Sites portion of this section can be made available at the Mason County Site. In order to provide a new telecom service to this site, Mason County PUD No. 3 (PUD3) would provide wholesale fiber optic transport services as authorized by Washington State Law. A new 12-strand single mode fiber optic cable and 200 pair copper cabling would be installed from the PUD3 right-of-way to the telecommunications demarcation point within the *Westside Prison Reception Center*. DOC would be responsible for funding these improvements. It is currently anticipated that all telecom utility distribution system upgrades would be performed by utilizing existing overhead utility infrastructure, existing utility structures, and existing utility right-of-ways.

Thurston County Site

Water

The *Westside Prison Reception Center* would require a peak domestic flow of 179,200 gpd and a fire flow of 3,000 gpm for 120 minutes, or 360,000 gallons. The Thurston County water system has capacity to serve this site. The site is currently served by two wells and two water storage tanks. However, Thurston County is requiring that the water service for the *Westside Prison Reception Center* be connected to the public water system. To achieve connection to the public water system for domestic water and fire protection water to this site, an extension of approximately 1,000 feet of new 12-inch water main from the treatment plant (located adjacent to the site on the east side of Old Highway 9) to the site would need to be constructed, as well as constructing approximately 5,600 feet of new 8-inch water main in Old Highway 9, and connecting to the existing 12-inch water main at the intersection of Old Highway 9 and Old Highway 99. The status of the two existing onsite wells and associated water rights would be determined based upon discussions with Thurston County.

Onsite existing water mains would need to be removed and replaced around the new facility and new fire hydrants installed.

Sanitary Sewer

The *Westside Prison Reception Center* would require a peak flow of 128 gpm and daily flow of approximately 92,160 gallons. The Thurston County sewage plant does not have capacity for the additional flows from the *Westside Prison Reception Center*. The site is currently served by Thurston County sewer, with a vacuum system located on the southerly boundary of the site. However, in order to meet the increased waste water flows of the *Westside Prison Reception Center*, the County treatment plant would need to have expanded capacity. Thurston County has stated that they will be responsible for the design and construction of a new oxidation ditch to accommodate the additional loading.

Onsite improvements would include replacing some of the gravity mains, as well as replacing the existing grinder pumps with larger pumps, and possibly expanding the volume of the concrete waste water wet well. The existing pumps and concrete waste water wet well are located within the wetland buffer on the southerly boundary of the site.

Stormwater

Storm drainage improvements to mitigate for new impervious surfaces would be designed to meet the 2005 *SMMWW*, as applied by Thurston County.

Because the onsite soils are generally supportive for infiltration of stormwater, flow control would utilize a combination of open ponds, swales, and possibly infiltration pipe that would temporarily store stormwater from the site while releasing to the subsurface soils. A portion of the existing storm system would be reused as an emergency overflow for the ponds.

Water quality of stormwater from areas subject to vehicular traffic would be provided with the use of wetponds, biofiltration, media filter drains, or other methods as accepted by Thurston County.

Sustainable design elements such as rain gardens and porous pavement would likely be incorporated into the design.

Natural Gas

Space heating on the Thurston County Site would be provided from the existing high pressure central steam distribution plant with burners that primarily fire on natural gas and utilize fuel oil as a backup fuel. Steam is piped to the existing buildings through existing underground tunnels which would be extended to the new building. In some non-critical areas, gas fired ventilation units may be utilized. Domestic hot water would be provided from high efficiency gas fired boilers.

Use of the existing power plant to provide steam heat throughout *Westside Prison Reception Center* at the Thurston County Site would require more natural gas consumption than for the Bremerton and Mason County Sites. Thus, a larger proportion of the gas consumption would be heating purposes (49 percent), while the remaining 51 percent would be for non-heat, or domestic, uses. Preliminary estimates of gas consumption and peak demand requirements at the Thurston County Site are provided in the All Sites portion of this section.

Puget Sound Energy had indicated that an upgrade of approximately 5,900 lineal feet of the offsite gas main from 4" to 8" will be required in order to provide the site with an uninterruptible supply. DOC would be responsible for funding this upgrade. .During times of curtailment from the utility company, the facility heating systems would convert to diesel fuel as a back-up fuel from on-site storage tanks.

Electrical

The necessary utility service (load) requirements (NEC calculated load of 7MW and average running load of 3.5MW) can be made available for the Thurston County Site.

Based on current PSE distribution system capacity, it is estimated by PSE that their existing distribution system would also be sufficient to meet the electrical requirement of the *Westside Prison Reception Center* as long as the actual running load is less than 4MW. As a result, it appears that the existing 12.5kV electrical service would be sufficient to meet the needs of the *Westside Prison Reception Center*. Minor utility metering revisions would be made by PSE and funded by DOC in order to accommodate the *Westside Prison Reception Center*. As a result, no significant environmental impacts related to the electrical service infrastructure are anticipated for this site.

Telecommunications

Based upon the information received from the telecom utility service providers, the necessary utility service requirements outlined above can be made available at the Thurston County Site. In order to provide new telecom service to this site, Qwest would extend a new 12-strand single mode fiber optic cable and 200 pair copper cabling from the Qwest right-of-way to the telecommunications demarcation point within the *Westside Prison Reception Center*. DOC would be responsible for funding these improvements. As a result, no significant environmental impacts related to the telecom service infrastructure are anticipated for this site.

Summary of the Three Site Alternatives

Water

At each of the site alternatives, the *Westside Prison Reception Center* would require a peak domestic flow of 179,200 gpd and a fire flow of 360,000 gallons. Each jurisdiction's water system (Bremerton, Shelton, and Thurston County) has the capacity to provide this service.

For the Bremerton Site, approximately 3.2 miles of 12-inch water main would need to be constructed plus a new booster pump and a 0.5 million gallon reservoir in association with the water main extension. The Mason County Site would require approximately 1.2 mile of 12-inch water main to the site from the Washington State Patrol site (plus an additional 2 miles if the water main extension from the City of Shelton to the WSP site if that current project fails to get funding). The Thurston County Site would require an extension of approximately 1,000 feet of 12-inch water main from the treatment plant to the site, plus approximately 5,600 feet of new 8-iinch water main in Old Highway 9.

Onsite improvements for all sites would likely consist of an 8-inch or 10-inch water main loop with fire hydrants to provide fire protection.

Sanitary Sewer

The *Westside Prison Reception Center* would require a peak flow of 128 gallons per minute (gpm) and daily flow of 92,160 gallons. The wastewater treatment plants at the Bremerton and Thurston County Sites do not have the capacity for the additional flows.

To provide sanitary sewer to the Bremerton Site, DOC would need to construct two pump stations, approximately 1.3 miles of 8-inch force main along SR 3, 0.85 mile of 8-inch gravity main on Port of Bremerton property, an MBR treatment facility on Port of Bremerton property, and one mile of 8-inch reclaimed water force main on Port of Bremerton property. An 8-inch gravity main would need to be constructed onsite.

For the Mason County Site, the *Westside Prison Reception Center* would not put the treatment plant over 85 percent capacity, which is the threshold at which the City of Shelton would require a design of the expansion of the treatment plant. Onsite, a pump station would be needed to be installed to connect to the existing force main within SR 102. An 8-inch gravity main would also need to be constructed onsite.

For the Thurston County Site, the wastewater treatment plant would need to have expanded capacity. Thurston County would be responsible for the design and construction of a new oxidation ditch to accommodate the additional loading. Onsite improvements would include replacing some of the gravity mains, as well as replacing the existing grinder pumps with larger pumps, and possibly expanding the volume of the concrete waste water wet well.

Stormwater

Storm drainage improvements associated with the *Westside Prison Reception Center* to mitigate for new impervious surfaces on all three sites would be designed to meet the Washington State Department of Ecology (DOE) 2005 *Stormwater Management Manual for Western Washington (SMMWW)*, as applied by each jurisdiction.

Due to the low infiltration rate on the Bremerton Site, flow control would utilize open ponds that would temporarily store stormwater from the site while releasing at a controlled rate to the site's natural discharge location(s). Underground detention pipe is an alternative if needed due to the potential of wildlife hazards from the ponds in relation to the flight paths from the nearby airport.

On the Mason County and Thurston County Sites, flow control would utilize a combination of open infiltration ponds, swales, and possibly infiltration pipe that would temporarily store stormwater from the site while releasing to the subsurface soils.

On all sites, water quality of stormwater from areas subject to vehicular traffic would be provided with the use of wetponds, biofiltration, media filter drains, or other methods, as accepted by the applicable jurisdiction.

Sustainable design elements such as rain gardens and porous pavement would likely be incorporated into the design of all sites.

Natural Gas

The natural gas purveyors for each site have indicated that if gas supplies of the overall system are at the maximum delivery rate, gas delivery to any of the sites would be curtailed. During times of curtailment from the utility company, the facility heating systems would switch to back-up fuel from on-site storage tanks (propane for the Bremerton and Mason County Sites and diesel fuel for the Thurston County Site).

At the Bremerton and Mason County Sites, space heating would be provided from either high efficiency gas fired boilers or gas fired ventilation units. Natural gas would also be utilized for heating of domestic hot water. Space heating on the Thurston County Site would be provided from the existing high pressure central steam distribution plant with burners that primarily fire on natural gas and utilize fuel oil as a backup fuel. At all three sites, domestic hot water would be provided from high efficiency gas fired boilers.

At the Bremerton and Mason County Sites, approximately 39 percent of the gas consumption would be for heating purposes, while the remaining 61 percent would be for non-heat, or domestic, uses. Due to the presence of existing buildings and the utilization of the existing steam plant at the Thurston County Site, a larger portion of the gas consumption would be for heating purposes at this site (49 percent for heating purposes and 51 percent for domestic uses).

At the Thurston County Site, an upgrade of approximately 5,900 lineal feet of the offsite gas main from 4 in. to 8 in. would be required. DOC would be responsible for funding this upgrade. No offsite natural gas improvements would be necessary for the Bremerton and Mason County Sites.

Electrical

At all three sites, anticipated electric consumption is expected to be in the rage of 6,600,000 kWh per year. The preliminary calculated power demand is 7 megawatt (MW) and the anticipated running load is expected to be in the 3.5 MW range. The utility provider has indicated that this demand would be served for all three sites. A 12.5kV primary metering/utility demarcation point would also be required to serve each site.

In order to provide a new 12.5kV electrical service to the Bremerton Site, PSE would be required to rebuild the existing SIN-25 medium voltage utility distribution feeder along SR 3 to create a double circuit configuration for a distance of approximately 3.25 miles. PSE would also need to upgrade the existing Sinclair Inlet substation in order to support the estimated load of the *Westside Prison Reception Center* at the Bremerton Site.

In order to provide a new 12.5kV electrical service to the Mason County Site, Mason County PUD No. 3 (PUD3) would construct a new distribution substation on property that PUD3 currently owns at the intersection of Dayton-Airport Road and Shelton-Matlock Road, approximately 2.85 miles away from the Mason County Site. In addition to constructing a new substation, PUD3 would install a new dedicated feeder from the new distribution substation to the Mason County Site.

The existing 12.5kV electrical service to the Thurston County Site would be sufficient to meet the needs of the *Westside Prison Reception Center*. Minor utility metering revisions would be made by PSE in order to accommodate the prison reception center at this site.

DOC would be responsible for funding the electrical improvements for the site selected for the *Westside Prison Reception Center*. To serve all three sites, it is currently anticipated that all electrical utility distribution system upgrades would be performed by utilizing existing overhead utility infrastructure, existing utility structures, and existing utility right-of-ways.

At all three sites, the prison reception center would be provided with a back-up emergency generator to maintain operations in the event of a power outage.

Telecommunications

Based upon the information received from the telecom utility service providers, the necessary utility service requirements outlined in the All Sites portion of this section could be provided to all three sites.

In order to provide new telecom service to each site, the telecom service providers would extend a new 12-strand single mode fiber optic cable and 200 pair copper cabling the telecom utility right-of-way to the telecommunications demarcation point within the Prison Reception Center. DOC would be responsible for funding the telecommunication improvements for the site selected for the *Westside Prison Reception Center*.

It is currently anticipated that all telecom utility distribution system upgrades would be performed by utilizing existing overhead utility infrastructure, existing utility structures, and existing utility right-of-ways.

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives, but the increased demand for additional long-term prison space would remain. Potential utility-related impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** – Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan

and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential utility impacts resulting from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in new utility-related impacts.

3. **Additional Long-Term Incarceration Capabilities** – Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for space as well as the displaced long-term prison space at the WCC due to increased prison reception center uses. Such construction could result in utility-related impacts. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential utility-related impacts.

3.15.3 Mitigation Measures

All Sites

Electrical and Natural Gas

- This project would comply with the Washington State Energy Code to reduce energy consumption.

- The project would meet or could exceed the Washington State Energy Code requirements in effect at the time of permitting. Additionally the project could exceed federal energy standards (adopted in ASHRAE Standard 90.1-Energy Standard for buildings) by at least 15% (Thurston County Site) and 25% (Mason County and Bremerton Sites). Measures to mitigate potential energy and natural resource impacts may include the following:

  - Heat Recovery on 100% outside air systems greater than 5,000 cfm. Heat recovery on systems smaller than 5000 cfm that operate 24 hours per day.

  - Heat Recovery on minimum outside air systems with more than 5,000 cfm outside air

  - Demand Controlled Ventilation on minimum outside air systems with less than 5,000 cfm of outside air

  - High efficiency condensing boilers (92% efficiency or greater)

  - Water heaters (96% efficiency or greater)

  - Low flow fixtures (shower heads) to reduce hot water consumption

- Passive cooling for areas that do not operate 24 hours per day that are located outside the inmate areas. This include spaces associated with visiting, exterior administration, staff support, and custody.

- Low transport energy for fans/pumps

- Low flow kitchen hoods controlled by temperature with variable make-up air.

- Modular water source heat pumps for process cooling (telecommunication rooms and control rooms) and building environmental cooling when cooling is required in select areas. Use rejected heat to preheat domestic hot water. Use heat pumps for heating when environmental cooling is not required.

Bremerton Site

Water

- Approximately 3.2 miles of 12-inch water main would need to be constructed plus a new booster pump and a 0.5 million gallon reservoir in association with the water main extension.

- Onsite improvements would likely consist of an 8-inch or 10-inch water main loop with fire hydrants to provide fire protection.

- Required offsite water main improvements would primarily be constructed within the road prism of SR 3. However, the work would require a stream culvert crossing of the Union River. Mitigation for this work would include minimizing disturbance of buffer areas by staying within the road prism above the stream culvert, and site restoration to meet City of Bremerton requirements.

Sanitary Sewer

- To provide a new sanitary sewer service to this site, the City of Bremerton has stated that DOC would need to construct two pump stations, approximately 1.3 miles of 8-inch force main along SR 3, 0.85 mile of 8-inch gravity main on Port of Bremerton property, an MBR treatment facility on Port of Bremerton property near the Olympic Industrial Park, and one mile of 8-inch reclaimed water force main on Port of Bremerton property.

- Onsite improvements would likely consist of an 8-inch gravity main that would connect to the new offsite extension on Lake Flora Road.

- Construction of the majority of the required offsite sewer utilities would be within the existing road prism. However, the work would require two stream crossings: the Union River and the Northeast Fork of the Union River. Construction of the MBR treatment facility on the Port of Bremerton property may require work in the proximity of sensitive areas. Mitigation for this work would include minimizing disturbance of buffer areas by boring beneath the river, and site restoration to meet City of Bremerton requirements.

Stormwater

- Storm drainage improvements to mitigate for new impervious surfaces service to this site would meet the 2005 *SMMWW*, as applied by the City of Bremerton.

- Because the onsite soils are generally not supportive for infiltration of stormwater, flow control would utilize open ponds that would temporarily store stormwater from the site while releasing at a controlled rate to the site's natural discharge location(s). Underground detention pipe is an alternative if needed due to the potential of wildlife hazards from the ponds in relation to the flight paths from the nearby airport.

- Mitigation for this work would include minimizing disturbance of work areas and site restoration to meet City of Bremerton requirements. Sustainable design elements such as rain gardens and porous pavement would help to mitigate stormwater impacts.

Natural Gas, Electrical and Telecommunications

- In order to provide a new 12.5kV electrical service to the Bremerton Site, PSE would be required to rebuild the existing SIN-25 medium voltage utility distribution feeder along SR 3 to create a double circuit configuration for a distance of approximately 3.25 miles. DOC would be responsible for funding this improvement.

- PSE would also need to upgrade the existing Sinclair Inlet substation in order to support the estimated load of the Westside Prison Reception Center. DOC would be responsible for funding this improvement.

- In order to provide new telecom service to this site, Kitsap Public Utility District (KPUD) in conjunction with NoaNet would extend a new 12-strand single mode fiber optic cable and 200 pair copper cabling the KPUD right-of-way to the Bremerton Site and extended into the telecommunications demarcation point within the Prison Reception Center. DOC would be responsible for funding this improvement.

- Offsite gas, electrical and telecom distribution would occur within existing right-of-way or utility easements wherever possible. Gas would be placed underground and electrical service to the site would largely use existing overhead power poles.

Mason County Site

Water

- The City of Shelton would require DOC to construct approximately 1.2 miles of 12-inch ductile iron water main along West Dayton Airport Road (SR 102) from the Washington State Patrol (WSP) offices to the site. Currently, there are plans for a 2-mile water main extension to extend water to the WSP, but funds have not yet been obtained to construct this portion. DOC would be required to fund and construct this water main extension if the current project fails to get funding.

- Onsite improvements would likely consist of an 8-inch or 10-inch water main loop with fire hydrants to provide fire protection. The onsite loop would connect to the new water main in West Dayton Airport Road (SR 102).

- Construction of the required offsite and onsite water utilities would be within the existing road prism of State Route 101 and West Dayton Airport Road (SR 102) or outside of any sensitive areas. Mitigation for this work would include minimizing disturbance of the work areas and site restoration to meet Mason County requirements.

Sanitary Sewer

- In order to provide a sanitary sewer service to this site, an 8-inch gravity main would need to be constructed onsite, as well as a pump station to connect to the existing force main located within West Dayton Road (SR 102) near the north property line.

- Construction of the required offsite and onsite sanitary sewer utilities would be within the existing road prism or outside of any sensitive areas. Mitigation for this work would include minimizing disturbance of the work areas and site restoration to meet Mason County requirements.

Stormwater

- The onsite soils are generally supportive for infiltration of stormwater if ground water does not inhibit the infiltrative characteristics. Flow control would utilize a combination of open infiltration ponds, swales, and possibly infiltration pipe that would temporarily store stormwater from the site while releasing to the subsurface soils. The depth to ground water has not yet been established. If ground water elevations are determined to be at an elevation that will inhibit infiltration, detention pond(s) or tanks may be necessary to temporarily store storm water while releasing to the downstream drainage features at a pre-determined rate. Alternately, the building and site improvements could be constructed at higher elevations that may allow more flexibility with infiltration.

- Storm drainage improvements to mitigate for new impervious surfaces service to this site would meet the 2005 *SMMWW*, as applied by Mason County. Mitigation for this work would include minimizing disturbance of work areas and site restoration to meet Mason County requirements. Sustainable design elements such as infiltration, rain gardens, and porous pavement would help to mitigate stormwater impacts.

Natural Gas, Electrical and Telecommunications

- An upgrade of approximately 5,900 lineal feet of the offsite natural gas main from 4 in. to 8 in. would be required. DOC would be responsible for funding this upgrade.

- In order to provide a new 12.5kV electrical service to this site, Mason County PUD No. 3 (PUD3) would construct a new distribution substation on property that PUD3 currently owns at the intersection of Dayton-Airport Road and Shelton-Matlock Road. This new substation would be located approximately 2.85 miles away from the proposed *Westside Prison Reception Center* on the Mason County Site. DOC would be responsible for funding this improvement.

- In addition to constructing a new substation, PUD3 would install a new dedicated feeder from the new distribution substation to the *Westside Prison Reception Center* site. DOC would be responsible for funding this improvement.

- A new 12-strand single mode fiber optic cable and 200 pair copper cabling would be installed from the PUD3 right-of-way to the telecommunications demarcation point within the *Westside Prison Reception Center*. DOC would be responsible for funding this improvement.

- Offsite gas, electrical and telecom distribution would occur within existing right-of-way or utility easements wherever possible. Gas would be placed underground and electrical service to the site would largely use existing overhead power poles.

Thurston County Site

Water

- To achieve connection to the public water system for domestic water and fire protection water to this site, an extension of approximately 1,000 feet of new 12-inch water main from the treatment plant (located adjacent to the site on the east side of Old Highway 9) to the site would need to be constructed, as well as constructing approximately 5,600 feet of new 8-inch water main in Old Highway 9, and connecting to the existing 12-inch water main at the intersection of Old Highway 9 and Old Highway 99.

- Onsite existing water mains would need to be removed and replaced around the new facility and new fire hydrants installed.

- The new offsite water mains are proposed to be constructed within the existing road prism. The onsite water mains are proposed to be constructed outside of the existing wetland and stream buffers where possible.

- Required water main improvements easterly toward Old Highway 99 would require crossing beneath Prairie Creek at the bridge crossing. Mitigation for this work would include minimizing disturbance of buffer areas and site restoration to meet Thurston County requirements.

- The status of the two existing onsite wells and associated water rights would be determined during the construction phase based upon discussions with Thurston County.

Sanitary Sewer

- In order to meet the increased waste water flows of the *Westside Prison Reception Center*, the County treatment plant would need to have expanded capacity. Thurston County would be responsible for the construction of a new oxidation ditch to accommodate the additional loading.

- Onsite improvements would include replacing some of the gravity mains, as well as replacing the existing grinder pumps with larger pumps, and possibly expanding the volume of the concrete waste water wet well.

- Sanitary sewer improvements would be necessary within the wetland/stream buffer for the both the private gravity system and the public vacuum system. Mitigation for this work would include minimizing disturbance of buffer areas and site restoration to meet Thurston County requirements.

Stormwater

- Flow control would utilize a combination of open ponds, swales, and possibly infiltration pipe that would temporarily store stormwater from the site while releasing to the subsurface soils. A portion of the existing storm system would be reused as an emergency overflow for the ponds.

- Storm drainage improvements to mitigate for new impervious surfaces would meet the 2005 *SMMWW*, as applied by Thurston County. Mitigation for this work would include minimizing disturbance of work areas and site restoration to meet Thurston County requirements. Sustainable design elements such as infiltration, rain gardens, and porous pavement would help to mitigate stormwater impacts.

Natural Gas, Electrical and Telecommunications

- In order to provide new telecom service to this site, Qwest would extend a new 12-strand single mode fiber optic cable and 200 pair copper cabling from the Qwest right-of-way to the telecommunications demarcation point within the *Westside Prison Reception Center*. DOC would be responsible for funding this improvement.

- PSE has indicated a need to upgrade the offsite gas distribution to service this site with uninterruptible gas. The upgrade will include replacing 5900 ft. of 4 in. gas main with new 8 in. gas main. it is anticipated that this upgrade would occur within existing right-of way or utility easements wherever possible.

- Minor electrical metering revisions would be required by Puget Sound Energy. DOC would be responsible for funding these revisions.

3.15.4 Significant Unavoidable Adverse Impacts

New utility line extensions and some expansions of utility facilities would be required to serve the *Westside Prison Reception Center* at any of the three site alternatives. With implementation of the identified mitigation measures, no significant unavoidable adverse impacts are anticipated.

3.16 ECONOMICS

This section evaluates select economic issues including:

- Costs to the state from construction and operation of the facility; and
- Costs and revenues to host jurisdictions from construction and operation of the facility.

The purpose of this section is to identify where these costs and revenues result in impacts to the state or host jurisdiction. For this analysis, it is assumed that an impact exists when the expected costs are larger than the expected revenues. Impacts can either be one-time or on-going:

- If one-time construction and infrastructure improvement costs outweigh one-time tax or fee revenues, there would be a one-time impact.
- If ongoing facility operating costs outweigh tax or fee revenues, there would be ongoing impacts.

This section is based on the Fiscal Assessment Report for the *Westside Prison Reception Center* by BERK, which is included in **Appendix J** to this Draft EIS.

3.16.1 Affected Environment

State of Washington

The fiscal impact to the State is largely defined by the acquisition of land, construction of the facility, operation of the facility, and the transport of offenders. The following sections detail the costs associated with land acquisition, the construction of a new *Westside Prison Reception Center*, the estimated operating costs, and the transportation costs at each of the alternative sites.

The State of Washington currently operates a prison reception center within the Washington Corrections Center (WCC) located near Shelton, Washington. According to a 2010 report on Facility Information at WCC, the operating budget is $52,881,774. The Facility Information document also states that the average daily population of WCC is 1,852, and says that "the Reception and Diagnostic Center…houses 1,500 offenders[1]." Assuming an annual operating cost for the current Reception Center at the same proportion as the number of offenders (i.e. approximately 81 percent), it costs the State approximately $42.8 million to operate the current reception center, as housed within WCC.

The 2002 Prison Transport System Improvement Plan found that WCC transportation costs were $684,776. After recalculating for facilities that have since closed and are no longer part of the routes WCC services and adjusting for inflation, 2011 transportation costs at WCC are estimated to be $837,720.

[1] Washington Corrections Centers 2010 Facility Information

Host Jurisdictions

City of Bremerton

The overall Bremerton property is approximately 600 acres with the Bremerton Site anticipated at approximately 60 acres. The site is currently undeveloped (for a more detailed description, see **Chapter 2**). The current owner of this property estimates a per-acre price of $43,560.[2] The estimated cost for DOC to purchase 60 acres for this site is therefore approximately $2.6 million. The final cost would depend on the exact amount of acreage purchased.

Services

The following providers currently serve the site:

- **Utilities.** Although the site is within the City's water and sewer utility service area, the City does not currently provide these services to the site. Puget Sound Energy provides electrical service to the site.

- **Police.** Police protection services are provided by the Bremerton Police Department.

- **Fire/EMS.** Fire and EMS services are provided by South Kitsap Fire and Rescue (SKFR). Although the proposed site location was annexed to the City in 2009, SKFR continues to provide fire and EMS services through an agreement with the City and its fire department.

- **Schools.** The City is served by the Bremerton School District.

- **Parks.** Parks and open space resources are owned and maintained by the City.

Revenues

The only revenue currently generated at this site is property tax. Initiative 747, implemented in 2001, limits annual property tax revenue increases to 1.0 percent annually, plus revenue from new construction. Since real estate generally appreciates at a rate higher than 1.0 percent, the City is likely already maximizing its property tax revenue each year and therefore would not see a decrease from taking this site off its tax roll after it moves to public ownership.

Mason County

The Mason County Site is approximately 497 acres with a prison reception center size anticipated at approximately 50 acres. The site is currently not developed (for a more detailed description, see **Chapter 2**). The current owner of this property estimates a per-acre price of $8,000.[3] The estimated cost for DOC to purchase 50 acres for this site is therefore

[2] Letter to Terry McCann from David Overton, Managing Partner, Overton & Associates; 2011.
[3] Letter to Terry McCann from Jim Hunter, Managing Member, Hunter Family Farm LLP; September 19, 2011.

approximately $400,000. The final cost would depend on the exact amount of acreage purchased.

Services

The Mason County Site is currently undeveloped and under private ownership. The following providers currently serve the site:

- **Utilities.** The site is within the service area of the City of Shelton's water and sewer utility—the City currently provides sewer service but water service does not reach the site. Cascade Natural Gas provides gas service to the site and Public Utility District #3 provides electrical service.

- **Police.** Police protection services are provided by the Mason County Sheriff's Department.

- **Fire/EMS.** Fire and EMS services are provided by Mason County Fire District 16 with automatic aid from Mason County Fire District 16 with automatic aid from Mason County Fire Districts 11 and 13.

- **Schools.** Unincorporated Mason County is served by Pioneer, Hood Canal, Mark M. Knight, Grapeview, North Mason, and Southside School Districts.

- **Parks.** Parks and open spaces in unincorporated Mason County are owned and maintained by the County.

Revenue

The only revenue currently generated at this site is property tax. Initiative 747, implemented in 2001, limits annual property tax revenue increases to 1.0 percent annually, plus revenue from new construction. Since real estate generally appreciates at a rate higher than 1.0 percent, the County is likely already maximizing its property tax revenue each year and therefore would not see a decrease from taking this site off its tax roll after it moves to public ownership.

Thurston County

The Thurston County Site is approximately 209 acres and contains the former Department for Social and Health Services (DSHS) Maple Lane Juvenile Correctional Facility recently operated by DSHS. The prison reception center would occupy a portion of the 55-acre area where the Maple Lane facility currently sits (for a more detailed description of the site, see **Chapter 2**).

Services

The Thurston County Site is currently owned by the State of Washington, and contains the former Maple Lane Juvenile Detention Facility. This site contains multiple structures, but is not currently operational. The following providers currently serve the site:

- **Utilities.** Thurston County currently provides sewer service to the site, and it is within the County's water utility service area, although service is not currently provided. Puget Sound Energy provides both natural gas and electrical service to the site.
- **Police.** Police protection services are provided by the Thurston County Sheriff's Office.
- **Fire/EMS.** Fire and EMS services are currently provided by the West Thurston Regional Fire Authority.

Revenue

Although the site is developed, there are minimal revenues currently collected by the County. It is likely there are some utility charges from maintaining existing structures, but tax revenue amounts are negligible. The County does not collect property taxes from this site, as it is publicly owned.

3.16.2 Impacts of Alternatives

State of Washington

Construction Costs

Land acquisition and construction costs are the two largest upfront costs associated with a new Westside Reception Center. Construction costs at each of the three alternative sites, including utility and infrastructure improvements, are anticipated to range between $130 and $158 million as shown in **Table 3.16-1**.

Table 3.16-1
ESTIMATED CONSTRUCTION COSTS

	Bremerton Site	Mason County Site	Thurston County Site
Facility Construction Cost	$ 110.1 M	$ 110.1 M	$ 109.5 M
On-site Utility/Infrastructure Improvements	$ 20.0 M	$ 13.8 M	$ 10.3 M
Off-site Utility/Infrastructure Improvements	$ 19.8 M	$ 7.7 M	$ 2.2 M
Additional Equipment Costs	$ 8.0 M	$ 8.0 M	$ 8.0 M
Total Construction Cost	**$ 157.9 M**	**$ 139.5 M**	**$ 130.1 M**

Source: Integrus Architecture, AHBL, and M/W Consulting Engineers, 2011.

Land acquisition costs for the Bremerton and Mason County sites were provided by the current property owners, and based on a per-acre price. Since the Thurston Site is currently owned by the State, it would be transferred to DOC for $1. Land acquisition costs for the respective alternative sites are presented in **Table 3.16-2**, below:

Table 3.16-2
ANTICIPATED LAND ACQUISITION COSTS

	Bremerton Site	Mason County Site	Thurston County Site
Anticipated Land Acquisition Costs	$ 2,613,600	$ 400,000	$ 1

Source: Letters to Terry McCann from David Overton, Managing Partner, Overton & Associates, 2011 (Bremerton Site); and Jim Hunter, Managing Member, Hunter Family Farm LLP, September 19, 2011 (Mason County Site).

For a more detailed description of these costs, see **Appendix J.**

Operating Costs

Operating costs associated with a new Westside Reception Center would be the largest ongoing costs to the State. Operating costs shown in **Table 3.16-3** were provided by DOC.

Table 3.16-3
ANNUAL RECEPTION CENTER OPERATING COSTS

	Bremerton Site	Mason County Site	Thurston County Site
Staff Benefits/Salaries	$ 31,884,000	$ 31,884,000	$ 31,884,000
Staff Supplies & Services	$ 1,673,000	$ 1,673,000	$ 1,673,000
Direct Variable Costs	$ 5,000,000	$ 5,000,000	$ 5,000,000
Offender Programming	$ 720,000	$ 720,000	$ 720,000
Total Annual Operating Cost	**$ 39,277,000**	**$ 39,277,000**	**$ 39,277,000**

Source: Washington State Department of Corrections, 2011.

Ongoing annual operating costs for all three of the alternative sites are estimated to be about $39.3 million. The components of this cost are:

- Staff benefits and salaries based on a total of 478 employees, with salaries assigned based on position and current salaries at the Westside Corrections Center. Benefits are assumed to be 30 percent of salary costs.

- Staff supplies and services are assumed to be $3,500 per FTE per year.

- Direct Variable Costs (DVC) include costs to support the care of offenders, such as food, laundry, clothing, and medical care. This cost is based on the 2011 legislative budget, which assumes total DVC to be about $4,883 per offender. The total shown in **Table 3.16-3** also assumes an average daily population of 1,024 offenders.

- Offender programming includes costs for basic skills education, cognitive behavioral therapy, offender job training, and chemical dependency treatment.

Transportation Costs

A major part of Reception Center operations consists of transporting prisoners throughout the state DOC system. As a result, it is important to examine the various transportation costs that each site alternative would incur as a result of shifting Reception Center operations to that facility.

The most recent examination of inmate transportation costs is from a 2002 report prepared by Carter Goble Associates, Inc.: *Washington Department of Corrections Prisoner Transport System Improvement Plan*. This report determined a transportation cost per mile for the transport operations occurring at the Washington Corrections Center (WCC), which currently houses the existing Reception Center. The cost per mile, in 2001 dollars, was $3.60. Adjusting this per mile cost according to the Consumer Price Index results in a 2011 per mile cost of $4.59.

The 2002 *Washington Department of Corrections Prisoner Transport System Improvement Plan* also includes routing information for the trips made from WCC. The report outlines a total of 11 trips throughout the state, nine of which occurred once a week, and two that occurred twice a week (runs to King County and Pierce, Kitsap, and Jefferson counties). Transportation costs were determined on the routes specified in the 2002 Washington Department of Corrections Prisoner Transport System Improvement Plan. Routes to facilities no longer in operation were excluded in the totals presented **Table 3.16-4** below.

Table 3.16-4
ANTICIPATED TRANSPORTATION COSTS

	Bremerton Site	Mason County Site	Thurston County Site
Anticipated Transportation Costs	$803,920	$837,720	$820,040

Source: BERK, 2011.

For a detailed breakdown of transportation costs at each alternative site, see **Appendix J**.

Host Jurisdictions

To assess the impact to the host jurisdiction, incremental revenues and costs stemming from the construction and operation of the facility at the alternative sites were analyzed. The analysis approached the fiscal impacts in two ways:

1. **One-time costs and revenues** associated with acquisition of land and construction of the reception center. One-time costs include needed improvements to utility infrastructure. One-time revenues include retail sales tax and business and occupation (B&O) tax on construction, as well as capital-restricted real estate excise taxes (REET) from land transfer.

2. **Recurring costs and revenues** associated with ongoing operations of the new reception center. Ongoing costs to the host jurisdiction will be generated by the need for additional service provision, such as police, fire and EMS, and general administration. Ongoing revenues include the retail sales tax and utility taxes from facility operations, as well as retail sales tax and property tax generated by reception center employees new to the area.

These costs and revenues will vary for each jurisdiction, given different taxing authorities and rates and different infrastructure needs at each location.

Costs/Revenues from Facility Construction

This section covers the one-time costs and revenues to the jurisdiction stemming from facility construction, as described above. This analysis addresses costs and revenues as follows:

- **Costs** stem from utility infrastructure improvements that the host jurisdiction would need to make to support facility construction. While this analysis identifies each of these costs, the host jurisdiction would not be responsible for paying these costs. The costs of utility infrastructure improvements would be borne by DOC.

- **Revenues** are assumed to be generated in two ways:

    - **Sales Tax and B&O Tax from Construction**. A significant portion of construction materials, supplies, and labor would be subject to the sales tax in all three jurisdictions. Only the City of Bremerton is able to levy B&O tax on gross receipts of construction.

    - **REET from Sale of Land**. The Bremerton and Mason County sites would both generate REET revenues as the land is transferred from its current private owners to the state. The Thurston County Site is already owned by the State of Washington.

One-time Service Costs

There are no one-time service costs estimated for any of the site alternatives. The discussion that follows explains how each service provider would accommodate the new reception center.

Bremerton Site. The service providers associated with the Bremerton Site would not be anticipated to experience additional costs:[4]

- **Utilities.** Costs associated with construction in Bremerton include upgrades to infrastructure for utility service provision. Since the DOC would be anticipated to pay for all needed utility upgrades to serve the new reception center, it is estimated there would be no one-time costs to the City of Bremerton.

[4] EA | Blumen, AHBL, and M/W Consulting Engineers; see Section 3.14, **Public Services**, for more information.

- **Police.** During the construction process, there may also be increased calls for police service due to trespassing, construction site theft, vandalism, or traffic incidents. Overall, construction impacts on police service are not expected to be significant and no additional staffing or equipment would be required by the Bremerton Police Department.

- **Fire/EMS.** Construction impacts on fire and EMS service would not be significant. Existing SKFR staffing and equipment are expected to be sufficient to handle increased service needs during the construction period.

Mason County Site. The service providers associated with the Mason County Site would not be anticipated to experience additional costs:[2]

- **Utilities.** Costs associated with construction in Mason County include upgrades to infrastructure for utility service provision. Since the DOC will pay for all needed utility upgrades to serve the new reception center, it is estimated there will be no one-time costs to Mason County.

- **Police.** During the construction process, there may also be increased calls for police service due to trespassing, construction site theft, vandalism, or traffic incidents. Overall, construction impacts on police service are not expected to be significant and no additional staffing or equipment would be required by the Sheriff's Office.

- **Fire/EMS.** Construction impacts on fire and EMS service would not be significant. Existing staffing and equipment are expected to be sufficient to handle increased service needs during the construction period.

Thurston County Site. The service providers associated with the Thurston County Site would not be anticipated to experience additional costs:[5]

- **Utilities.** Costs associated with construction in Thurston County include upgrades to infrastructure for utility service provision. Since the DOC would be anticipated to pay for all needed utility upgrades to serve the new reception center, it is estimated there would be no one-time costs to Thurston County.

- **Police.** During the construction process, there may also be increased calls for police service due to trespassing, construction site theft, vandalism, or traffic incidents. Overall, construction impacts on police service are not expected to be significant and no additional staffing or equipment would be required by the Sheriff's Office.

- **Fire/EMS.** Construction impacts on fire and EMS service would not be significant. Existing staffing and equipment are expected to be sufficient to handle increased service needs during the construction period.

[5] EA | Blumen, AHBL, and M/W Consulting Engineers; see Section 3.14, **Public Services**, for more information.

*One-time Tax Re*venues

Table 3.16-5 summarizes the one-time revenue to each host jurisdiction from sales tax, B&O tax, and REET.

Table 3.16-5
ANTICIPATED ONE-TIME REVENUES[6]

Revenue Source	Bremerton Site	Mason County Site	Thurston County Site
Sales Tax	$ 1,203,000	$ 1,239,000	$ 1,148,000
B&O Tax[1]	$ 177,000	$ -	$ -
REET	$ 13,100	$ 2,000	$ -
Utility Hook-up Fees[2]	$ 2,882,000*	$ 911,000	$ 2,290,000
Traffic Impact Fees[3]	$ -	$ -	$ 184,000
Total One-time Revenue	**$ 4,275,100**	**$ 2,152,000**	**$ 3,438,000**

Source: BERK, 2011.
[1]Counties do not have the statutory authority to levy a B&O tax.
[2]The City of Bremerton is in the process of modifying their Municipal Code to allow developer costs expended for construction of municipal systems to offset these general facility charges. Since adoption of these code revisions will likely not meet the timeline of the reception center project, the City of Bremerton may enter into an agreement upon site selection for the offset.
[3]The City of Bremerton and Mason County do not collect traffic impact fees on non-residential development.

Costs/Revenues from Operation

This analysis also estimates the ongoing, annual costs and revenues that would be experienced by each host jurisdiction if it is chosen as the site for the new prison reception center. These impacts are estimated for full operating capacity of the new reception center:

- **Costs** to the host jurisdiction would be generated by the need for additional public services, such as police, fire and EMS, and general administration.

- **Revenues** will be generated in two ways:

    - **Direct Revenues from Facility Operation**. Revenues generated by the activity on-site will include utility tax revenues from facility operation as well as sales tax from purchasing materials and supplies for the center.

    - **Indirect Revenues from Population Increases**. Since the reception center will be such a large employer, adding new employees to a region will increase population and result in new tax streams to the host jurisdiction. The primary tax streams will be sales tax and property tax.

[6] See **Appendix J** for more detailed revenue analysis.

Annual Service Costs

Bremerton Site. The service providers associated with the Bremerton Site would not be anticipated to experience additional costs:[7]

- **Police.** It is estimated that approximately 20.5 additional calls for police would be generated by the reception center each year. Given that the City currently handles approximately 56,000 calls each year, no significant impacts would be generated. Additionally the population increase from in-migration of employees would not significantly change the ratio of commissioned officers per capita, requiring no increase in police staffing.

- **Fire/EMS.** The additional 46 calls per year for fire/emergency medical response services generated by the prison reception center would represent a 0.5 percent increase over the average of 8,782 SKFR calls and would not be anticipated to significantly impact the level of service provided by the SKFR. Increased population from in-migration of employees to the City of Bremerton would not be assumed to generate significant impacts to fire or EMS needs for the Bremerton Fire Department.

- **School.** Up to approximately 55 school-age children could move into the City of Bremerton as a result of the increased employment levels and population. This would represent a 1.1 percent increase in student population and would not be assumed to generate significant impacts to schools.

- **Parks.** The relatively small population increase anticipated at the Bremerton Site would not be anticipated to generate significant impacts to parks or open spaces.

Mason County Site. The service providers associated with the Mason County Site would not be anticipated to experience additional costs:[8]

- **Police.** It is estimated that approximately 20.5 additional calls for police would be generated by the reception center each year. Given that the Sheriff's Department currently handles approximately 18,000 calls each year, no significant impacts would be generated. Additionally the population increase from in-migration of employees would not significantly change the ratio of commissioned officers per capita, requiring no increase in police staffing.

- **Fire/EMS.** The estimated one additional call for fire suppression services per year would be handled by Mason County Fire District 16 through a Memorandum of Understanding with DOC, and would not be anticipated to significantly impact the level of service provided by the District. The estimated 45 additional calls for EMS service would likely be handled by Mason County Medic One through a new contract with DOC. Additional population in unincorporated areas of the County from in-migration of employees would not be assumed to generate significant impacts to fire or EMS services, as new residents would likely be spread throughout several fire districts.

[7] EA | Blumen; see Section 3.14, **Public Services**, for more information.
[8] EA | Blumen; see Section 3.14, **Public Services**, for more information.

- **Schools.** The approximately 49 new students who would move into unincorporated Mason County would likely be distributed throughout several school districts. The relatively small number of new students in any given school district would not be assumed to generate significant impacts to schools.

- **Parks.** The relatively small population increase anticipated at the Bremerton Site would not generate significant impacts to parks or open spaces.

Thurston County Site. The service providers associated with the Thurston County Site would not be anticipated to experience additional costs:[6]

- **Police.** It is estimated that approximately 20.5 additional calls for police would be generated by the reception center each year. Given that the Sheriff's Department currently handles approximately 56,000 calls each year, no significant impacts would be generated. Additionally the population increase from in-migration of employees would not significantly change the ratio of commissioned officers per capita, requiring no increase in police staffing.

- **Fire/EMS.** The additional annual calls expected from the reception center (one for fire suppression and 45 for EMS response) would represent a 1.7 percent increase over the average of 2,701 calls the Thurston Regional Fire Authority current handles, and would not be anticipated to significantly impact the level of service provided. Additional population increases would also not be expected to increase service needs.

- **Schools.** Given that new school-age children would be spread throughout the unincorporated areas of Thurston County, significant impacts to schools are not anticipated.

- **Parks.** The relatively small population increase anticipated at the Bremerton Site would not generate significant impacts to parks or open spaces.

*Annual Tax R*evenues

Table 3.16-6 summarizes the annual revenues estimated to be received by each host jurisdiction:

Table 3.16-6
ANTICIPATED ON-GOING REVENUES

Revenue Source	Bremerton Site	Mason County Site	Thurston County Site
Direct Revenues			
Utility Tax Total[1]	$ 96,400	$ -	$ -
Water	$ 6,000	$ -	$ -
Sewer	$ 23,700	$ -	$ -
Gas	$ 16,000	$ -	$ -
Electricity	$ 34,100	$ -	$ -
Cable	$ 13,300	$ -	$ -
Garbage	$ 2,200	$ -	$ -
Telephone	$ 1,100	$ -	$ -
Sales Tax	$ 27,500	$ 32,300	$ 32,300
Indirect Revenues			
Property Tax[2]	$ -	$ -	$ -
Sales Tax	$ 38,800	$ 13,200	$ 6,100
TOTAL REVENUES	**$ 162,700**	**$ 45,500**	**$ 38,400**

Source: BERK, 2011.

[1]*Counties are not statutorily authorized to collect utility taxes; thus, no utility tax revenues are assumed for the Mason County and Thurston County sites.*

[2]*No new housing construction is anticipated within the host jurisdictions for the additional employees (see Section 3.9); therefore no new construction add-on value is anticipated.*

No Action Alternative

Under the No Action Alternative, the Proposed Actions would not be implemented and the *Westside Prison Reception Center* would not be built at any of the site alternatives, but the increased demand for additional long-term prison space would remain. Potential economic impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** – Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which could address potential economic impacts from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in economic impacts.

3. **Additional Long-Term Incarceration Capabilities** – Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for space as well as the displaced long-term prison space at the WCC due to increased prison reception center uses. Depending on the location and type of development, the additional long-term incarceration facilities

could result in economic impacts. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential economic impacts.

3.1.3 Mitigation

No impacts have been identified and no mitigation is required.

3.1.4 Significant Unavoidable Adverse Impacts

The host jurisdictional one-time and ongoing revenues exceed their associated costs. No significant unavoidable adverse impacts have been identified.

CHAPTER 4

References

Chapter 4
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CHAPTER 5

Acronyms

Chapter 5
ACRONYMS

A

ACS	American Community Survey

B

B&O	Business and Occupation
BMC	Bremerton Municipal Code
BMPs	Best Management Practices
BPD	Bremerton Police Department

C

CAA	Clean Air Act
CACs	Collision Analysis Corridors
CALs	Collision Analysis Locations
CARAs	Critical Aquifer Recharge Areas
CIG	Climate Impacts Group
CO	Carbon monoxide
CSCSL	Confirmed and Suspected Contaminated Sites List
CTMP	Construction Transportation Management Plan
CY	Cubic Yards

D

DAHP	Department of Archaeology and Historic Preservation
dB	decibel
DOC	Washington State Department of Corrections
DOD	Department of Defense
DOE	Department of Ecology
DSHS	Department of Social and Health Services
DVC	Direct Variable Costs

E

Ecology	Washington Department of Ecology
EDNA	Environmental Designation for Noise Abatement
EIS	Environmental Impact Statement
EMT	Emergency Medical Technicians
EPA	Environmental Protection Agency
EPF	Essential Public Facility
ESA	Environmental Site Assessment

F

FAA	Federal Aviation Administration
FAR	Floor Area Ratio
FTE	Full-time Equivalent

G

GHG	Greenhouse Gas Emissions
GLO	General Land Office
GMA	Growth Management Act
GMDG	Grand Mound Development Guidelines
GPD	Gallons Per Day
GPM	Gallons Per Minute

H

HSS	Highway of Statewide Significance
HVAC	Heating, Ventilation, and Air Conditioning

I

IALs	Intersection Analysis Locations
IPCC	Intergovernmental Panel on Climate Change

K

KCWPP	Kitsap Countywide Planning Policies
KPUD	Kitsap Public Utility District

L

Ldn	Day-night Sound Level
LEED	Leadership in Energy & Environmental Design
Leq	Equivalent Sound Level
LID	Low Impact Development

LOS	Level of Service
LTA	Long Term Agriculture

M

MBR	Membrane Bioreactor
MCMO	Mason County Medic One
MCWPP	Mason Countywide Planning Policies
MIC	Manufacturing/Industrial Center
Microns	Micrometers
MSA	Metropolitan Statistical Area
MSE	Mechanically Stabilized Earth
MTCA	Model Toxics Control Act
$MTCO_2e$	Metric Tons Carbon Dioxide Equivalent
MUTCD	Manual on Uniform Traffic Control Devises
MW	Megawatt

N

NAAQS	National Ambient Air Quality Standard
NFA	No Further Action
NHPA	National Historic Preservation Act
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory

O

ORCAA	Olympic Region Clean Air Agency

P

PI	Planned Industrial
PPP	Pollution Prevention Plan
PSCAA	Puget Sound Clean Air Agency
PSE	Puget Sound Energy
PSRC	Puget Sound Regional Council
PUD3	Mason County PUD No. 3

R

RA	Rural Area
RCW	Revised Code of Washington
REET	Real Estate Excise Taxes
RR-20	Rural Residential 20

S

SEPA	State Environmental Policy Act
SHPO	State Historical Preservation Officer
SKFR	South Kitsap Fire and Rescue
SKIA	South Kitsap Industrial Area
SLM	Sound Level Measurements
SMMWW	Stormwater Management Manual for Western Washington
SR	State Route

T

TCC	Thurston County Code
TCS	Thurston County Sheriff's Office
TESC	Temporary Erosion and Sedimentation Control
TRPC	Thurston Regional Planning Council

U

UGAs	Urban Growth Areas
USDA	United States Department of Agriculture
UST	Underground Storage Tank

V

VCP	Volunteer Cleanup Program
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds

W

WAC	Washington Administrative Code
WCC	Washington Correctional Center
WDFW	Washington State Department of Fish and Wildlife
WRIA	Water Resource Inventory
WSDOT	Washington Department of Transportation
WSP	Washington State Patrol

APPENDICES

APPENDIX A

Distribution List

Appendix A
DISTRIBUTION LIST

Federal Agencies

United States Army Corps of Engineers
United States Bureau of Indian Affairs
United States Cost Guard, 13th District
United States Environmental Protection Agency
United States Federal Aviation Administration
United States Federal Highway Administration

State Agencies

Office of the Governor
Governor's Office of Regulatory Assistance
Department of Archaeology and Historic Preservation
Department of Commerce
Department of Community, Trade and Economic Development
Department of Ecology
Department of Fish and Wildlife
Department of General Administration
Department of Health, Environmental Health
Department of Natural Resources, SEPA Center
Department of Social and Health Services (DSHS) Juvenile Rehabilitation Administration
Department of Transportation (WSDOT), Environmental Affairs Office
Department of Transportation (WSDOT), Attn.: Carter Timmerman
Washington State Patrol

State Legislators

Bremerton Site

Derek Kilmer, Senator, 26th District
Jan Angel, Representative, 26th District
Larry Seaquist, Representative, 26th District

Mason County Site

Tim Shelton, Senator, 35th District
Kathy Haigh, Representative, Senator, 35th District
Fred Finn, Representative, Senator, 35th District

Thurston County Site

Dan Swecker, Senator, 20th District
Richard DeBolt, Representative, 20th District

Gary Alexander, Representative, 20th District

Regional Agencies

Puget Sound Clean Air Agency
Olympia Region Clean Air Agency

Local Agencies

Bremerton Site

City of Bremerton Mayor's Office
City of Bremerton Department of Community Development
City of Bremerton Public Works Department
Bremerton Fire Department
Bremerton Police Department
Bremerton School District
Port of Bremerton
Bremerton/Kitsap Health District
Central Kitsap School District
Bremerton Chamber of Commerce
Kitsap County Assessor
Kitsap County Commission
Kitsap County Sheriff
Kitsap Transit
South Kitsap Fire and Rescue
South Kitsap School District

Mason County Site

City of Shelton Mayor's Office
City of Shelton Public Works
Mason County Commission
Mason County Economic Development Council
Mason County Fire District 16
Mason County Health Department
Mason County Public Utility District #3
Mason County Public Works Department
Mason County Sheriff
Mason County Transportation Authority
Port of Shelton
Shelton School District
Shelton-Mason County Chamber of Commerce

Thurston County Site

Thurston County Commission
Thurston County Public Information Office
Thurston County Department of Resource Stewardship
Thurston County Planning Department

Thurston County Public Works
Thurston County Fire District #1
Thurston County Health Department
Thurston County PUD
Thurston County Resource Stewardship
Thurston County Sheriff
Thurston Economic Development Council
Rochester School District

Other Agencies and Organizations

Bucoda, Town of
Centralia, City of
Chehalis, City of
Lacey, City of
Lewis County
Napavine, City of
Olympia, City of
Pe Eli, Town of
Port Orchard, City of
Rainier, City of
Tenino, City of
Tumwater, City of
Burlington Northern Railroad

Libraries

Bremerton Public Library
Shelton Public Library
Rochester Public Library

Tribes

Chehalis Confederated Tribes
Cowlitz Indian Tribe
Hoh Tribe
Jamestown S'Klallam Tribe
Lower Elwha Klallam Tribe
Lummi Nation
Makah Tribe
Muckleshoot Tribe
Nisqually Tribe
Nooksack Tribe
Port Gamble S'Klallam Tribe
Puyallup Tribe
Quileute Tribe
Quinault Nation
Samish Nation
Sauk-Suiattle Tribe
Shoalwater Bay Tribe

Skokomish Tribe
Snoqualmie Tribe
Squaxin Island Tribe
Stillaguamish Tribe
Suquamish Tribe
Swinomish Tribe
Tulalip Tribes
Upper Skagit Tribe
Yakama Nation

Newspapers

Belfair Herald
Daily Journal of Commerce
Kitsap Sun
Shelton-Mason County Journal
The Olympian

Other

Cascade Natural Gas
Puget Sound Energy

Scoping Comment Providers/Parties of Record

Barbara Adkins
Dedrick Allan
Donald Arsenault
Steve Bloomfield
Bob Boostrom
Tim Braniff
Adam Brockus
Kristy Buck
Amy Burnett
Delores Caudill
Elizabeth Case
Lori Coppenrath
Tom Davis
Shelly L. DeFeo
Lance Deyette
Linda Ring Erickson
Gary Felt
Dan Fisher
Kim Fry
Herb Gerhardt
Green Diamond Resource Company
Dennis Hallett
Marlene Hampton
Tim Heffernan

Demar Holtz, Sr.
Jim Hunter
Curt Hunter
Sandy Hunter
Tina Hunter
Jay Hupp
Jerilee Johnson
Dave Kamin
Jayni Kamin
Bill Kent
John and Phoebe Kesting
Dave Klovdahl
Jerry Lingle
Robert Mansfield
Matt Matayoshi
Will Maupin
Heidi McCutchean
Jim McDonald
Judy McDonald
Brian McElfresh
Morton Chamber of Commerce
Charles Nieson
Dave O'Connell
Dave O'Leary
David Overton
Sara Paradise
Dawn and Ron Punnell
Robert and Denise Randall
Mark Riddell
Dianne P. Robinson
Jane and George Roush
Roy Runyon
Earl Sande
Ryan Sandstrom
Joanna Seely
John Snaza
D Soper
Robert Supino
Lee Swoboda
John Tarrant
Terri Thomas
Todd Thomas
Ken Vanbuskirk
Walsh Pacific, Inc.
Conley Watson
West Coast Land Development, Inc.
Sunny Wheeler
Nick Wofford

APPENDIX B

Geotechnical Report

Geotechnical Consulting Services

Technical Report
Draft Environmental Impact Statement
Proposed Westside Prison Reception Center
Western Washington

for

Washington State Department of Corrections

October 27, 2011

GeoEngineers

8410 – 154th Avenue NE
Redmond, Washington 98052
425.861.6000

Geotechnical Consulting Services
Technical Report
Draft Environmental Impact Statement
Proposed Westside Prison Reception Center
Western Washington

File No. 1793-044-00

October 27, 2011

Prepared for:

Washington State Department of Corrections
c/o Integrus Architecture, P.S.
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Attention: Larry Hurlbert

Prepared by:

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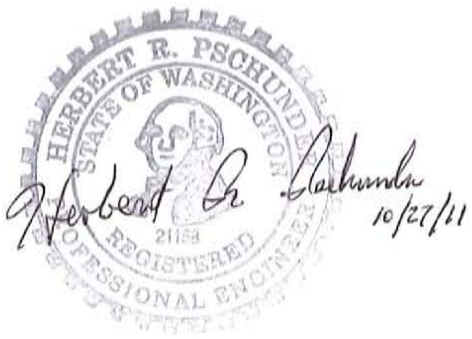
Senior Geotechnical Engineer



Bo McFadden, PE, LEG
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GEOTECHNICAL CONSULTING SERVICES

TECHNICAL REPORT

DRAFT ENVIRONMENTAL IMPACT STATEMENT

PROPOSED WESTSIDE PRISON RECEPTION CENTER

WESTERN WASHINGTON

FOR

WASHINGTON STATE DEPARTMENT OF CORRECTIONS

OCTOBER 27, 2011

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SECTION 1. INTRODUCTION

This report summarizes our geotechnical consulting services to support the preparation of the Draft Environmental Impact Statement (DEIS) for the proposed Westside Prison Reception Center. The Reception Center is to be located at one of three sites within Western Washington.

These DEIS services are a continuation of our involvement on the project, which included geotechnical input to the site selection and evaluation process that resulted in the identification of the three potential sites for the proposed Reception Center.

1.1 Project Description

We understand the Reception Center is to be fully operational by 2016 and will include approximately 383,000 square feet of developed area located within a 50-acre portion of the selected site. The three site alternatives to be evaluated in the EIS include:

- A 160-acre site (referred to as the Bremerton Site in this report) located southeast of SR 3 and northeast of SW Lake Flora Road near Bremerton in Kitsap County, Washington.
- A 57-acre site (referred to as the Mason County Site in this report) located south of West Dayton Airport Road (SR 102) and northeast of the existing Washington State Correctional Center near Shelton in Mason County, Washington.
- A 210-acre site (referred to as the Thurston County Site in this report) located at the existing Maple Lane Juvenile Correctional Facility at 20311 Old Highway 9 SW in Grand Mound, Thurston County, Washington.

In addition to the three site alternatives, a No Action Alternative is to be evaluated. The three sites are located as shown on the General Vicinity Map, Figure 1.1-1.

The Washington State Department of Corrections (DOC) is the State Environmental Policy Act (SEPA) lead agency and issued a Determination of Significance for this project dated April 22, 2011. The DOC has determined that the proposed Reception Center is likely to have a significant adverse impact on the environment and that an EIS is required.

Our services are intended to provide input on the Earth and Water elements for the project DEIS. These services include an evaluation of: (1) the affected environment (existing conditions) at each of the three sites, (2) the impacts of project construction on each site, (3) recommended measures to mitigate potential adverse impacts, and (4) conditions of the "no action alternative". The specific scope of our services includes the following tasks:

1. Review existing information on geologic and groundwater conditions at the three sites based on published geologic and environmentally critical area maps, groundwater supply well logs, information in our files, aerial photographs, and other sources.
2. Complete a geologic reconnaissance of each site.

3. Identify and describe existing topography, geology and soil conditions for each of the three sites and provide related maps. We also characterized groundwater conditions at each site.
4. Identify environmentally critical areas at each site including steep slope, landslide, erosion, seismic and critical recharge areas, and provide related maps.
5. Evaluate potential environmental impacts of project construction at each site and for the No Action Alternative.
6. Discuss and evaluate potential measures to mitigate identified adverse environmental impacts.
7. Attend up to two project team meetings.
8. Interact with project team members during preparation of our technical report related to the DEIS.
9. Prepare text and graphics for a technical report that addresses the Earth and Groundwater elements of the DEIS.

Our scope did not include subsurface explorations to supplement the existing geologic, soil and groundwater information.

SECTION 2. EXISTING CONDITIONS

2.1 Bremerton Site

2.1.1 General

The Bremerton site is located approximately 3 miles northeast of Belfair, Washington, as shown on the Vicinity Map, Figure 2.1-1. It is also located about 10 miles southwest of downtown Bremerton, Washington. The site is approximately 160 acres in size and is located within the northeast portion of Section 22 of Township 23 North, Range 1 West. It is also within the South Kitsap Industrial Area (SKIA), a 3,700-acre planned industrial zone. Figure 2.1-2, Topography and Slope Map, shows the site in relation to existing surface features.

The site is triangular in shape with dimensions of approximately 3,400 feet along the north side, 3,600 feet along the east side, and 5,000 feet along the southwest side. State Route (SR) 3 extends in a southwest to northeast direction near the northwest corner of the site. SW Lake Flora Road extends southeast from SR 3 along the southwest side of the site. Bremerton National Airport is located adjacent to the north side of the site. A tree farm is present along the east side of the site.

The Bremerton site is currently undeveloped and used for forestry. A few unpaved logging roads exist within the site.

2.1.2 Topography and Surface Conditions

Terrain on the site is generally rolling with several ridges, swales and localized depressions. Figure 2.1-2 shows site topographic conditions based on light detection and ranging (LiDAR)

imagery. The ridges and swales are generally oriented in a northeast to southwest direction. Some of the swales contain wetlands and drainage channels.

Elevations across the site range from about Elevation 460 feet (NAD 1983 datum) near the southeast corner of the site to about Elevation 325 feet near the northwest corner of the site. Slope inclinations within the site are generally less than 30 percent, although localized areas of slopes greater than 30 percent exist on the flanks of some of the northeast to southwest oriented ridges that cross the site, as shown in Figure 2.1-2. Also shown in Figure 2.1-2 are small areas where slopes locally exceed 40 percent, primarily in road cuts.

The project site is presently undeveloped and forested with second or third growth evergreen and deciduous trees. Undergrowth consists of ferns, vine maple, blackberry, salal and other species typical of forested terrain in Western Washington. Isolated shallow depressions we observed in the eastern portion of the site during our field reconnaissance appear to contain wetlands. We observed standing water in a few of these depressions. Water appears to flow to the southwest from the ponds that form in the depressions during periods of heavy precipitation.

The project site has been extensively logged in the past, as indicated by our review of aerial photographs and the existence of a network of unpaved logging roads. Portions of the logging roads were constructed by placing fill across lowlying areas and by cutting in sloping areas.

2.1.3 Geology

The distribution of surface and near-surface geologic units within the Bremerton site is shown on the Geologic Map, Figure 2.1-3. The unit boundaries are based on our review of previous mapping completed by others (Polenz, et al., 2009), air photo interpretation and field reconnaissance. We also reviewed subsurface exploration logs from a previous project we completed at the Bremerton National Airport located northeast of the site. We are unaware of any exploration logs that may have been completed within the project site. Boundaries on the geologic map should be considered approximate.

Geologic conditions at the site are primarily the result of several regional glaciations. The most recent glaciation in the Puget Sound area was the Vashon glaciation. The nonglacial intervals preceding the Vashon glaciation were characterized by climates similar to present conditions. Erosion of previous glacial deposits and deposition of nonglacial sediments occurred during such nonglacial intervals.

Deposits associated with the Vashon glaciation include advance outwash, glacial till and recessional drift. Nearly all of the site appears to be underlain at relatively shallow depths by the Vashon till – a dense, nonsorted, nonstratified glacial deposit of silt, sand, gravel, cobbles and boulders that has been compacted beneath several thousand feet of glacial ice. Based on nearby well logs, the till generally ranges in thickness from 5 to 40 feet or more, and overlies advance outwash or older nonglacial and glacial deposits. As indicated in Figure 2.1-3, the till cap is apparently continuous across the site, although it appears to be mantled in places by a thin layer of recessional drift, as discussed below.

Undisturbed glacial till typically has high shear strength and low compressibility. It also has low permeability that renders it generally unsuitable for infiltration.

Advance outwash was deposited by meltwater streams flowing off the approaching glacier, and consists mostly of dense, stratified fine to medium sand with occasional gravel and lenses of clay and silt. The advance outwash sand is apparently not exposed within the site. It typically has high shear strength and low compressibility, and is moderately to highly permeable.

Recessional drift includes soils that were directly deposited by the melting ice (ablation drift) and soils that were deposited by meltwater steams either in direct contact with the ice (ice-contact stratified drift) or in lowlying areas freshly exposed by ice melting (recessional outwash). Recessional drift mantles the glacial till in some areas, and is most evident in cuts along the north side of SW Lake Flora Road. Typically, the recessional drift layer is about 2 to 3 feet thick where exposed. The ablation drift is similar in composition to glacial till but is less dense, while the recessional outwash generally consists of stratified deposits of sand with variable silt, gravel and cobble content. The composition of ice-contact stratified drift ranges between that of ablation drift and recessional outwash.

Recessional drift generally has moderate shear strength, low to moderate compressibility, and moderate permeability.

Erosion and deposition during and following the Vashon glaciation have created the present topography. The pronounced northeast to southwest oriented ridges and swales within the site are primarily the result of ice flow. Some post glacial erosion and deposition have taken place within the site, but on a smaller scale as compared with the glacial action.

Most of the depressions and swales that exist within the site resulted from glacial erosion and deposition. They have served as accumulation areas for loose and soft sediments, most notably in the eastern portion of the site where there are localized depressions and channels related to a sizable wetland located just to the northeast of the site. The soils with the highest concentrations of organic matter (peat) generally occur in depressions that contain standing water during most of the year. A small area of peat is mapped in the northeast portion of the site by Polenz, et al (2009), and there may be other smaller peat areas occupying depressions, swales and drainage channels, primarily within the eastern portion of the site.

Peat soils are highly compressible, have very low shear strength, and have low permeability.

2.1.4 Soils

The characteristics of surficial soils at any particular location are the result of the combined influence of the following five factors: (1) the parent material from which the soil was derived, (2) climate, (3) living organisms, (4) topographic effects, and (5) the length of time that the soil has been developing.

Within the project site, as throughout most of the Puget Sound region, the surficial soils have developed on materials that were deposited or exposed by erosion during or immediately following the Vashon glaciation. Since this glaciation was relatively recent, the soil-forming processes have generally not had a great impact on the characteristics of the geologic materials

from which the surficial soils have been derived. The distribution of surficial soils within the site is shown on the Soils Map, Figure 2.1-4.

All on-site soils have been mapped by the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS, formerly known as the USDA Soil Conservation Service) as part of the Alderwood Series (McMurphy, 1980), which consists of moderately well drained soil formed in glacial deposits. The site is mapped by the NRCS as Alderwood very gravelly sandy loam, 0 to 6 percent slopes, over the majority of the site, and Alderwood very gravelly sandy loam, 6 to 15 percent slopes, in the remainder of the site. Although not mapped by the NRCS, we identified localized areas of Alderwood very gravelly sandy loam, 15 to 30 percent slopes, within the site.

Shalcar muck occurs within a closed depression in the northeastern portion of the site. Soil type distributions shown in Figure 2.1-4 are a refinement of the NRCS map, based on site-specific topographic and recent geologic information. There may be other areas of Shalcar muck (not shown in Figure 2.1-4) that occupy depressions, swales and drainage channels.

The Alderwood soils are generally derived from lightly to highly consolidated glacial till, weathered glacial till and ablation drift soils. Within the project site, a typical profile in the Alderwood soils consists of forest duff and dark brown orange silty sand about ½-foot-thick, underlain by medium dense, brown to grayish brown silty sand and sandy silt with varying amounts of gravel, cobbles and organic matter. The medium dense layer extends to depths of about 1 to 4 feet and overlies dense till. Permeability is moderately rapid near the surface and very low within the underlying dense till. Perched water is common above the dense till during the normally wet seasons of the year.

The Alderwood very gravelly sandy loam, 0 to 6 percent slopes, is categorized as "Prime farmland if irrigated" by the Washington State Department of Ecology (Ecology) (Ecology, 2010).

The Shalcar muck that occurs within low lying areas in the eastern portion of the site is generally poorly drained and is composed of soft, dark brown to black peat and organic silt and clay. The peat and organic soils may range from 1 to 3 feet or more in thickness and are typically saturated and highly compressible. These soils are underlain at depth by glacial till having very low permeability. Shalcar muck is categorized as "Prime farmland if drained" (Ecology, 2010).

2.1.5 Geologic Hazard Areas

2.1.5.1 *General*

Geologically Hazardous Areas in the City of Bremerton's Critical Areas Ordinance (Chapter 20.14 in the City of Bremerton Municipal Code, 2011) include areas susceptible to erosion, sliding, geologic events, landslides, and moderate and steep slope areas. Specific categories that are to be used in classifying geologically hazardous areas are as follows:

"(a) **Areas of High Geologic Hazard** are areas meeting either of the following two criteria:

1) Areas with slopes greater than forty percent (40%) with vertical relief of ten (10) or more feet; or

2) Areas with slopes greater than thirty percent (30%) with vertical relief of ten (10) or more feet, and any of the following characteristics:

   (i) Unstable soil or shoreline classified as "Unstable" (U), "Unstable Old Slides" (UOS), "Unstable Recent Slides" (URS), or "Intermediate" (I) by the US Department of Agriculture Soil Conservation Service, US Geologic Survey, the Washington Department of Ecology Coastal Zone Atlas, or qualified geologist or geotechnical engineer;

   (ii) Groundwater seepage or springs present on the slope, areas underlain by impermeable silts or clays, or mappable emergent water;

   (iii) Erosion Hazard as indicated by potential for stream or wave incision or as classified as "highly erodible" or "potentially erodible" by the Natural Resources Conservation Service.

   (iv) Seismic Areas subject to liquefaction from earthquakes such as hydric soils as identified by the Natural Resources Conservation Service, and areas that have been filled to make a site more suitable.

(b) **Areas of Moderate Geologic Hazard** are any areas with slopes of thirty percent (30%) or greater and vertical relief of ten (10) or more feet, and any areas with slopes of fifteen percent (15%) to thirty percent (30%) with vertical relief of ten (10) or more feet and any of the characteristics per BMC 20.14.620(2)(i)-(iii) above. Seismic hazard areas subject to liquefaction from earthquakes, areas with hydric soils, and areas of loose fill shall be classified as Moderate Geologic Hazard Areas regardless of percent slope."

According to the Kitsap County Department of Community Development Geologically Hazardous Areas map (2011; used also by the City of Bremerton), no Geologically Hazardous Areas are indicated within or in the immediate vicinity of the site.

The following sections of this report discuss Geologic Hazard Areas we identified specific to the Bremerton site, using the criteria listed above

2.1.5.2 *Steep Slopes*

The Topography and Slope Map, Figure 2.1-2, shows slope areas that are inclined between 15 to 30 percent, between 30 and 40 percent and greater than 40 percent. The majority of the site has slopes that are less than 30 percent. Some localized slopes steeper than 30 percent exist along the flanks of low ridges that extend northeast to southwest across the central portion of the site. There are also minor areas where slopes exceed 40 percent; these are associated with cuts made along Lake Flora Road and along logging roads within the site.

The 30 to 40 percent slopes and the slopes greater than 40 percent are generally less than 10 feet in vertical height. However, a few localized areas where slopes exceed 40 percent and are 10 feet or greater in vertical height are identified as High Hazard areas on the Geologic Hazard Areas Map, Figure 2.1-5 and a few slopes exceeding 30 percent and 10 feet or greater

in vertical height are included in Moderate Hazard areas in Figure 2.1-5. These areas are concentrated along the flanks of the ridges that extend across the site, and also locally in cuts made for logging roads and SW Lake Flora Road.

As mentioned above, these areas meet the criteria for Geologically Hazardous Areas in the Bremerton Critical Areas Ordinance, but are not officially mapped or identified as such.

2.1.5.3 *Landslide Hazards*

Landsliding is the slow to rapid, downslope movement of a mass that includes rock, soil and/or vegetative cover. The failures may occur as planar slides, block slides, rotational slumps, debris avalanches and mudflows. Landsliding usually occurs on steep slopes and is commonly initiated during periods of intense or prolonged rainfall when the groundwater level is high. Landsliding can also be initiated by removing lateral support from the toe of a slope or by overloading the slope with fill soil or water.

There are relatively few areas within the site that slope more steeply than 30 percent and have a vertical height of 10 feet or greater. Slopes within the site are generally underlain by stable, dense glacial till or other drift, and are of limited vertical height and areal extent. Based on our observations, geologic conditions in the more steeply sloping areas within the site generally do not meet the City of Bremerton criteria for landslide hazard areas, except during strong ground shaking, as discussed below.

2.1.5.4 *Seismic Hazards*

The Puget Sound area is a seismically active region that has experienced thousands of earthquakes in historical time. Seismic hazards represent risk of injury or damage to humans and property resulting directly from earthquakes. Seismic hazards include surface fault rupture, ground shaking and associated ground failure such as liquefaction and landsliding.

Based on our review of published geologic information (Kitsap County Department of Community Development, 2011; US Geologic Survey, 2011), there are no faults that have been mapped in the immediate vicinity of the site. The closest mapped fault (the Seattle Fault Zone) is located approximately 5 miles north of the site. This fault zone extends in an east-west direction through the Bremerton area and is thought to be capable of generating a magnitude 7.5 earthquake (ten Brink, et al., 2002).

Another fault zone, the east-west trending Tacoma Fault Zone, has been mapped approximately 6 miles south of the site (US Geologic Survey, 2011). This fault zone is thought to be capable of generating a magnitude 7 earthquake (Sherrod, et al., 2004).

The strength of ground shaking at any particular location is related in part to the underlying soil and rock conditions. Ground shaking in areas of soft soils is generally stronger than in areas of dense or stiff soils, or shallow bedrock. Simplified site soil classes have been developed for evaluating design ground motions (International Building Council, 2009). Based on site soil properties, sites are classified as either Site Class A, B, C, D, E, or F. Site Class A corresponds to hard rock, while Site Class F corresponds to weak, soft or potentially liquefiable soils

Based on Site Class mapping consistent with the IBC for each county within Washington State by Palmer et al. (2004), nearly the entire project site is mapped as Site Class C (very dense soil and soft rock). The area underlain by peat in the northeastern portion of the site is likely categorized as Site Class F and is also classified as a Moderate Geologically Hazardous Area as shown in Figure 2.1-5. As mentioned above, this area meets the criteria for Geologically Hazardous Areas in the Bremerton Critical Areas Ordinance, but is not officially mapped or identified as such.

Liquefaction is the loss of strength by loose, saturated, primarily granular soils when subjected to vibration or shaking. Peat soils are not considered to be susceptible to liquefaction but are often included with areas mapped as being liquefiable because of similar seismic response characteristics (permanent displacement or loss of strength as a result of ground shaking). Within the project site, the peat area mapped in the northeast portion of the site (see Figure 2.1-5) is in this category. All other areas within the site are mapped as having a very low susceptibility to liquefaction (Palmer, et al., 2004).

Localized areas of shallow sloughing of loose soils triggered by strong ground shaking could occur on slopes steeper than 30 and steeper than 40 percent and having a vertical height of 10 feet or greater. These areas are included as Moderate and High Geologic Hazard areas in Figure 2.1-5, respectively, and are associated with the flanks of the northeast-southwest trending ridges that extend across the central portion of the site, and also with cuts for logging roads and SW Lake Flora Road.

As mentioned above, these areas meet the criteria for Geologically Hazardous Areas in the Bremerton Critical Areas Ordinance, but are not officially mapped or identified as such.

2.1.5.5 *Erosion Hazards*

Erosion of soils is a natural, ongoing physical process by which sediment is removed from topographic high points and transported down slope by a variety of geomorphic processes. These include the slow process of soil creep, and more rapid processes of sheet wash, slope ravel, and rill and gully erosion. Erosional processes may be accelerated during construction by removing vegetation and exposing native soils. Some soils are particularly susceptible to erosion because of their smaller particle size and lower density.

The Alderwood very gravelly sandy loam, 0 to 6 percent slopes, and 6 to 15 percent slopes are both considered to have “slight erosion hazard” by the NRCS (McMurphy, 1980). Alderwood very gravelly sandy loam, 15 to 30 percent slopes, has a “moderate erosion hazard” classification. Based on the definition of Erosion Hazard Areas in the Bremerton Critical Areas Ordinance, we consider site slopes between 15 and 30 percent and having a vertical height of 10 feet or greater as Moderate Geologically Hazardous Areas, and slopes exceeding 30 percent with a vertical height of 10 feet or greater as High Geologically Hazardous Areas, as shown in Figure 2.1-5. These areas are associated with the flanks of the northeast-southwest trending ridges that extend across the central portion of the site, and also with cuts for logging roads and SW Lake Flora Road.

As mentioned above, these areas meet the criteria for Geologically Hazardous Areas in the Bremerton Critical Areas Ordinance, but are not officially mapped or identified as such by the City of Bremerton.

2.1.6 Groundwater

2.1.6.1 *Aquifer Systems*

There are two distinct aquifer systems beneath the project site. These include: (1) a shallow aquifer within the recessional drift soils overlying the relatively impermeable glacial till cap, and (2) a deeper aquifer within the advance outwash that underlies the till. Other aquifers may underlie the advance outwash aquifer. Each aquifer system is controlled to a large extent by the presence of underlying soils of relatively low permeability.

The surficial aquifer is a relatively thin zone of seasonally saturated soil (perched groundwater zone) overlying the glacial till that underlies the site. The thickness of the saturated zone, where present, fluctuates seasonally. Recharge to the surficial aquifer originates from precipitation that falls on the site and vicinity. Groundwater flow within these shallow perched zones mimics surface topography and extends in down slope directions toward wetland areas and drainage channels. Shallow groundwater in the northwestern portion of the site generally flows to the northwest. Shallow groundwater in the remainder of the site generally flows to the southwest.

A portion of the shallow groundwater at the site also migrates downward and provides recharge to the deeper advance outwash and lower aquifers. This applies particularly to closed depressions such as the peat area mapped in the northeastern portion of the site. Downward percolation of water is impeded by the glacial till that is present across the site.

The advance outwash aquifer consists of stratified sand and gravel deposited during the southward advance of glacial ice. These deposits are typically interbedded with relatively low-permeability zones of silty sand, silt and clay. This aquifer is the source of water for several domestic wells located in the vicinity of the site.

The advance outwash aquifer is largely unconfined, as unsaturated zones exist between the base of the overlying till and water levels indicated on the well logs. Static ground water elevations within the advance outwash are typically 55 to 75 feet below the existing ground surface. Groundwater within the advance outwash likely flows to the northwest in the northwestern portion of the site, and to the south and southeast in the remainder of the site.

2.1.6.2 *Water Well Data*

A review of records on file with the Washington State Department of Ecology (Ecology, 2011) indicates there are five existing water wells located within ¼ mile of the Bremerton site. The approximate locations of these wells are shown in Figure 2.1-6. A summary of pertinent data from the well logs is presented in Table 2.1-1. Many of the well logs indicate only approximate locations. Ground surface elevations were not included on the logs. We estimated ground surface elevations at the well locations from available topographic maps.

Information on groundwater quality was not included on the well logs.

2.1.6.3 *Critical Aquifer Recharge and Wellhead Protection Areas*

Critical Aquifer Recharge Areas (CARAs), as defined in the Bremerton Municipal Code (2011), are "those land areas that contain hydrogeologic conditions that facilitate aquifer recharge and/or transmission of contaminants to an underlying aquifer" (Section 20.14.420). CARAs are classified as either Category I or II. Category I CARAs are those areas where the potential for certain land use activities to adversely affect groundwater is high. Category I CARAs include areas inside the 5-year travel time zone for Group A water system wells, calculated in accordance with the Washington State Wellhead Protection Program. They also include areas inside the ten-year time of travel zones in wellhead protection areas when the well draws its water from an aquifer that is at or above sea level and is without an underlying protective impermeable layer.

Category II CARAs are areas that provide recharge to aquifers that are current or potentially will become potable water supplies and are vulnerable to contamination based on the type of land use activity. Category II CARAs include highly permeable soils as identified in the Soil Survey of Kitsap County (McMurphy, 1980).

According to the Kitsap County Department of Community Development (2011), Category II CARAs are mapped about ½ mile southwest of the site, as shown in Figure 2.1-6. This designation likely results from the presence of mappedhighly permeable soils. No Category I or II CARAs are mapped within the project site.

Wellhead protection zones associated with a regional water supply well, the Belfair Water District Well 4 (located about 1-⅓ mile west of the site and within adjacent Mason County), extend eastward toward the site (Robinson & Noble, 2001; Washington State Department of Health, 2011). The 10-year time of travel zone for this well extends partly into the southern portion of the site, as shown in Figure 2.1-6. However, since there is a near-surface, low permeability layer (glacial till) underlying the site, this wellhead protection zone would not technically meet the requirements of a Category I CARA.

2.2 Mason County Site

2.2.1 General

The Mason County site is located approximately 4 miles northwest of downtown Shelton in Mason County, Washington, as shown on the Vicinity Map, Figure 2.2-1. The site is approximately 57 acres in size and is located within the western portion of Section 3 of Township 20 North, Range 4 West. Figure 2.2-2, Topography and Slope Map, shows the site in relation to existing surface features.

The site has the plan shape of a trapezoid, with the long dimension oriented north-south. The west and east property lines are about 1250 feet and 2450 feet long, respectively. The site is about 1350 feet wide in the west-east direction. SR 102 (West Dayton Airport Road) and forested land are located along the northwest side of the site. The Mason County Landfill is located adjacent to the northwest corner of the site. An auto junk yard, a residence and forested land are located along the east side of the site. Forested land is also located along the

south and west sides of the site. The Washington State DOC Shelton Correction Center is located about 1 mile southwest of the site.

The Mason County site is currently undeveloped and used for forestry. Several unpaved logging roads and dirt bike trails exist within the site.

2.2.2 Topography and Surface Conditions

Terrain on the site is generally level to gently rolling, except along the northwest margin and near the southeast corner of the site. A steep slope parallels West Dayton Airport Road and extends along the entire northwest side of the property. The lower portion of a prominent hill extends partly into the southeast portion of the site. Figure 2.2-2 shows site topographic conditions based on LiDAR imagery.

Elevations across the site range from about Elevation 280 feet near the southwest corner of the site to about Elevation 335 feet near the southeast corner. The top of the steep slope along West Dayton Airport Road is at about Elevation 305 feet, and the slope has a maximum height of about 25 feet. It is inclined at about 15 to 40 percent. The hillside in the southeast portion of the site is also inclined at about 15 to 40 percent. Figure 2.2-2 shows these slope areas that are inclined between 15 to 30 percent, between 30 and 40 percent, and steeper than 40 percent.

The project site is currently undeveloped and forested with second or third growth evergreen and deciduous trees. Undergrowth consists of ferns, vine maple, salal and other species typical of forested terrain in Western Washington. There is an apparent drainage swale along the western property boundary. This swale did not contain surface water during the time of our July 12, 2011 site reconnaissance.

The site has been extensively logged in the past, as indicated by our review of aerial photographs and the existence of a network of unpaved dirt logging roads and trails. Several of these logging roads and trails extend down the steep slope along the northwest side of the property.

2.2.3 Geology

The distribution of surface and near-surface geologic units within the Mason County site is shown on the Geologic Map, Figure 2.2-3. The unit boundaries are based on our review of previous mapping completed by others (Polenz, et al., 2010, and Logan, 2003), air photo interpretation, topography, and field reconnaissance, and should be considered approximate. We also reviewed subsurface exploration logs for a previous project we completed at the DOC Shelton facility located about 1 mile west of the site and for a project completed by others for a proposed motor sports race track facility about ½ mile northwest of the site. We are unaware of any subsurface explorations that may have been completed within the site.

Near-surface geologic conditions at the site are primarily the result of the most recent glaciation in the Puget Sound region, the Vashon glaciation. Deposits associated with the Vashon glaciation at the site include recessional outwash and glacial till.

Recessional outwash includes soils that were deposited in lowlying areas and channels freshly exposed by ice melting. It also includes soils that were deposited by meltwater streams in direct contact with the ice (ice-contact stratified drift). The outwash typically consists of sand and gravel with varying silt content, cobbles and boulders. It is typically in a medium dense condition. The higher terrain along and north of West Dayton Airport Road is a terrace underlain by ice-contact stratified drift, while the lower terrain within the majority of the site is apparently a meltwater channel filled in with recessional outwash deposits.

Based on nearby explorations, the thickness of the ice-contact stratified drift underlying the higher terrace northwest of the site is at least 40 feet. The thickness of the recessional outwash in the lower lying portion of the project site is uncertain, but nearby well logs indicate that it could be on the order of 5 to 10 feet thick.

Recessional outwash generally has moderate to high shear strength, low to moderate compressibility, and moderate to high permeability.

The Vashon glacial till underlying the recessional outwash soils and at shallow depth in the hillside along the southeast portion of the site is a dense, nonsorted nonstratified deposit of silt, sand, gravel and cobbles and boulders that has been compacted beneath several thousand feet of glacial ice.

Undisturbed glacial till typically has high shear strength and low compressibility. It also has low permeability that renders it generally unsuitable for infiltration.

Nearby well logs indicate that the glacial till is underlain at depth by advance outwash deposits consisting of dense, stratified sand with gravel and layers of silt and clay. The advance outwash sand is apparently not exposed within the site. It typically has high shear strength and low compressibility, and is moderately to highly permeable.

2.2.4 Soils

The near-surface soils within the project site have developed on recessional outwash or glacial till deposits. The distribution of surficial soils at the site is shown on the Soils Map, Figure 2.2-4. The predominant soil series mapped within the site by the NRCS include the Lystair, Grove and Shelton series (Ness and Fowler, 1960).

The Lystair and Grove soils are derived from granular recessional outwash deposits, and the Shelton series is derived from glacial till. The northeastern portion of the site is mapped by the NRCS as Lystair loamy sand, 0 to 5 percent slopes. The majority of the site is mapped as Grove gravelly sandy loam, 0 to 5 percent slopes, while the southeastern portion of the site is mapped as Shelton gravelly sandy loam, 5 to 15 percent slopes. Although not mapped by the NRCS, there are soils in the steep slope along the northwest edge of the site that classify as Grove gravelly sandy loam, 15 to 30 percent slopes, and 30 to 45 percent slopes. Soil type distributions shown in Figure 2.2-4 are a refinement of the NRCS map, based on site-specific topographic and geologic information.

The Lystair soils typically consist of forest duff and organic soils with a thickness of up to ½ foot, underlain by orange brown and yellowish brown, medium dense sand with occasional gravel.

The permeability of the soil is high. Lystair loamy sand, 0 to 5 percent slopes, is categorized as "Prime farmland if irrigated" (Ecology, 2010).

The Grove soils typically consist of ½ foot of forest duff and organic soil, underlain by orange brown, loose sand and gravel grading to yellowish brown medium dense sand and gravel below about 2 feet. The soil is highly permeable. Grove gravelly sandy loam, 0 to 5 percent slopes, is categorized as "Prime farmland if irrigated" (Ecology, 2010).

The Shelton soils have a typical profile of forest duff and organic soils about ½ foot thick, underlain by medium dense orange brown silty sand with varying amounts of gravel. The medium dense layer extends to depths of about 2 to 3 feet and overlies brownish gray, dense glacial till consisting of silty sand with gravel and cobbles. Permeability is moderate near the surface and very low within the underlying dense till. Perched water is common above the dense till during the normally wet seasons of the year.

2.2.5 Geologic Hazard Areas

2.2.5.1 *General*

Geologically Hazardous Areas in the Mason County Department of Community Development's Resource Ordinance (Section 17.01, 2006) include Landslide Hazard Areas (17.01.100), Seismic Hazard Areas (17.01.102) and Erosion Hazard Areas (17.01.104). Classification of these hazard categories are as follows:

Landslide Hazard Areas

a. "Areas with any indications of earth movement such as debris slides, earthflows, slumps and rock falls.

b. Areas with artificial oversteepened or unengineered slopes, i.e., cuts or fills.

c. Areas with slopes containing soft or potentially liquefiable soils.

d. Areas oversteepened or otherwise unstable as a result of stream incision, stream bank erosion, and undercutting by wave action.

e. Slopes greater than 15 percent (8.5 degrees) and having the following:

   - Hillsides intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock (e.g., sand overlying clay); and
   - Springs or groundwater seepage.

f. Any area with a slope of forty percent or steeper and with a vertical relief of 10 or more feet except areas composed of consolidated rock. A slope is delineated by establishing its toe and top and measured by averaging the inclination over at least ten feet of vertical relief."

Seismic Hazard Areas

Types of seismic hazards include: surface faulting, ground shaking, earthquake-related ground failure and landslides, lateral spreading, liquefaction, lurch cracks, rockfalls, differential settlement, regional uplift, seiches, and/or tsunamis.

Hazard classification is as follows:

"Areas susceptible to ground failure including the following:

a. Areas with geologic faults;
b. Deep road fills and areas of poorly compacted fill;
c. Areas with artificially oversteepened slopes;
d. Postglacial stream, lake or beach sediments;
e. River deltas;
f. Areas designated as potential Landslide Hazard Areas;
g. Bluff areas; and
h. Areas underlain by potentially liquefiable soils."

Erosion Hazard Areas

Erosion Hazard Areas are "areas in Mason County underlain by soils which are subject to severe erosion when disturbed. Such soils include, but are not limited to, those for which potential for erosion is identified in the Soil Survey of Mason County, USDA Soil Conservation Service, 1960, or any subsequent revisions or additions to this source. There soils include, but are not limited to, any occurrence of River Wash ('Ra') or Coastal Beaches ('Cg') and the following when they occur on slopes 15 percent or steeper:

a. Alderwood gravelly sandy loam ('Ac' and "Ad')
b. Cloquallum silt loam ('Cd')
c. Harstine gravelly sandy loam ('Hb')
d. Kitsap silt loam ('Kc')"

According to the Mason County Department of Community Development's Geologically Hazardous Areas map (personal communication with Hersha, 2011), no Geologically Hazardous Areas are indicated within or in the immediate vicinity of the site.

The following sections of this report discuss Geologic Hazard Areas we identified specific to the Mason County site, using the criteria listed above.

2.2.5.2 *Landslide Hazards*

Areas within the site that meet the Mason County Resource Ordinance criteria for landslide hazard areas include those areas with slopes of 40 percent or steeper and having a vertical

height of 10 feet or greater. These include small areas within the northwestern, northeastern and southeastern portions of the site, and are shown on the Geologic Hazard Areas Map, Figure 2.2-5. These areas meet the criteria for Landslide Hazard Areas in the Mason County Resource Ordinance, but are not officially mapped or identified as such (personal communication with Hersha, 2011).

2.2.5.3 *Seismic Hazards*

Based on our review of published geologic information (U.S. Geologic Survey, 2011), there are no faults that have been mapped in the immediate vicinity of the site. The closest mapped fault (the Hood Canal Fault Zone) is located approximately 8 miles north of the site. This apparent fault zone extends in a northeast-southwest direction under Hood Canal. However, recent mapping "found no convincing evidence for the existence of this fault" (Contreras, et al, 2010).

A postulated fault, the northwest to southeast trending Olympia Structure, has been mapped by Gower et al. (1985) approximately 2 miles east of the site. However, there is disagreement in the geologic literature about whether the structure is actually a fault.

The strength of ground shaking at the site is related in part to the predominant soil types that underlie the site. Based on Site Class mapping for Mason County (Palmer et al, 2004), nearly the entire project site is mapped as IBC Site Class C to D (very dense soil and soft rock, to stiff soil). The southeastern portion of the site coinciding with the hillside underlain by glacial till is mapped as Site Class C (very dense soil and soft rock).

The entire site is mapped by Palmer, et al. (2004) as having very low susceptibility to liquefaction.

Landslide hazard areas associated with ground shaking are the same as those previously identified as landslide hazard areas in Section 2.2.5.3 above. These areas meet the criteria for Seismic Hazard Areas in the Mason County Resource Ordinance, but are not officially mapped or identified as such.

2.2.5.4 *Erosion Hazards*

We consider the slopes inclined at 15 percent or steeper along the northwestern side and within the southeastern portion of the site to be erosion hazard areas, in accordance with the Mason County Resource Ordinance for erosion hazard areas. The erosion hazard areas we identified are primarily located within the steel slope near the northwestern site boundary and the hillside that extends into the southeast portion of the site, and are included on the Geologic Hazard Areas Map, Figure 2.2-5. These areas meet the criteria for Erosion Hazard Areas in the Mason County Resource Ordinance, but are not officially mapped or identified as such.

2.2.6 Groundwater

2.2.6.1 *Aquifer Systems*

There are at least two distinct aquifer systems within the project site. These include: (1) a shallow aquifer within the recessional outwash soils overlying relatively impermeable soils

such as glacial till, and (2) a deeper aquifer within the advance outwash sand and other permeable soils that underlie the till. Other aquifers may underlie the advance outwash aquifer. Each aquifer system is controlled to a large extent by the presence of underlying soils of relatively low permeability.

The shallow aquifer is largely of unknown thickness within the site due to the scarcity of available subsurface information within the interior of the site. Nearby well logs indicate the recessional outwash in the low lying central portion of the site could be on the order of 5 to 10 feet thick. The depth to groundwater is also unknown. The thickness of the saturated zone, where present, fluctuates seasonally in response to variations in precipitation. Shallow groundwater within the recessional outwash likely flows to the southwest, following the general orientation of the ground surface.

Some shallow groundwater within the recessional outwash likely migrates downward through the underlying till, although at a relatively slow rate. This downward flow provides recharge to the underlying aquifer(s).

The advance outwash aquifer consists of stratified sand and gravel deposited during advance of glacial ice. These deposits are typically interbedded with relatively low-permeability zones of silty sand, silt and clay. This aquifer is the source of water for several domestic wells located near the site.

The advance outwash aquifer appears to be both confined in places and unconfined in others, as indicated on the well logs. Static ground water elevations within the advance outwash are typically 20 to 45 feet below the existing ground surface. Groundwater within the advance outwash probably also flows to the southwest.

2.2.6.2 *Water Well Data*

A review of records on file with the Washington State Department of Ecology (Ecology, 2011) indicates there are three existing water wells located within ¼ mile of the Mason County site. The approximate locations of these wells are shown in Figure 2.2-6. A summary of pertinent data from the well logs is presented in Table 2.2-1. These well logs indicate only approximate locations. Ground surface elevations were not included on the logs. We estimated ground surface elevations at the well locations from available topographic maps.

Information on groundwater quality was not included on the well logs.

2.2.6.3 *Critical Aquifer Recharge and Wellhead Protection Areas*

CARAs within Mason County are classified according to the criteria provided in Mason County Resource Ordinance 17.01.080, CARAs (Mason County, 2009). These are areas which are "determined to have an important recharging effect on aquifers used as a source for potable water and vulnerable to contamination from recharge." The Ordinance further classifies CARAs as follows:

a. Class I (Extremely Susceptible). Areas designated as Class I demonstrate hydrogeologic characteristics that allow for an extremely high susceptibility of an underground source

of drinking water. These areas are identified as recessional outwash of thickness greater than 25 feet.

b. Class II (Highly Susceptible). Areas designated as Class II demonstrate hydrogeologic characteristics that allow for a high susceptibility of an underground source of drinking water. These areas are identified as recessional outwash and alluvium of thickness 25 feet or less in thickness. Depth to water is generally 25 to 125 feet below land surface.

c. Class III (Moderately Susceptible). Areas designated as Class III demonstrate hydrogeologic characteristics that allow for a moderate susceptibility of an underground source of drinking water. These areas are identified as advance outwash. Depth to water is greater than 125 feet below land surface. Class III areas include those well head protection areas, not otherwise designated as a Class I, II, or III critical recharge area, and recorded with the Mason County Department of Community Development.

d. Class IV (Low Susceptibility). Areas designated as Class IV demonstrate hydrogeologic characteristics that allow for a low susceptibility of an underground source of drinking water.

Based on the Mason County CARAs Map (personal communication with Hersha, 2011) and our review of available hydrogeologic information, the majority of the site is a Class I CARA, as shown in Figure 2.2-6. The eastern edge of the site is mapped within a Class II CARA, while the hillside that extends into the southeastern portion of the site is not mapped as a CARA.

There is a wellhead protection zone located southwest of the site, as shown in Figure 2.2-6 (Washington State Department of Health, 2011).

2.3 Thurston County Site

2.3.1 General

The Thurston County site is located within the community of Grand Mound, Washington, as shown on the Vicinity Map, Figure 2.3-1. The site is approximately 210 acres in size, of which about 55 acres is considered developable. It is located within the southwestern portion of Section 11 and the northern portion of Section 14 of Township 15 North, Range 3 West. Figure 2.3-2, Topography and Slope Map, shows the site in relation to existing surface features.

The site is roughly trapezoidal in plan shape, with approximate dimensions of 2,500 feet (northwest to southeast) by 1,000 feet (southwest to northeast). Old Highway 9 SW extends along the northeast side of the site. A dairy farm is located along the west side of the site. Prairie Creek, a tributary to the Chehalis River, extends along the southeast and south sides of the site. The river is located about ¼ mile southwest of the site.

The Thurston County site is currently developed and occupied by the Maple Lane Juvenile Detention facility, operated by the Washington State Department of Social and Health Services (DSHS).

2.3.2 Topography and Surface Conditions

The developed portion of the site is located on a nearly level terrace above the Chehalis River floodplain. The southwestern side of the site slopes steeply down over a vertical height of about 20 feet to the level of the floodplain. Steep slopes less than 20 feet in vertical height are also present along the southeast side of the site, adjacent to Prairie Creek. Figure 2.3-2 shows site topographic conditions based on LiDAR imagery.

Elevations across the developed portion of the site are at or close to Elevation 160 feet (NAD 1983 datum). The river floodplain south and west of the site is at about Elevation 140 feet.

There are over 30 buildings of various ages and sizes that comprise the Maple Lane facility. There are paved driveways and parking areas within the site. Most of the site is vegetated with lawn and scattered stands of evergreen and deciduous trees. Most of the developed portion of the site is enclosed by a 12-foot-high security fence. Dense vegetation covers the steep slopes bordering the southeastern and southwestern sides of the developed area.

There are two artificial depressions within the site that are used for infiltration of stormwater. One is a pond located in the northwest portion of the site with a depth of about 10 feet and the other is a swale about 300 feet long and several feet deep that parallels the northwest edge of the main parking lot. We understand from the facilities manager at the Maple Lane facility that these depressions infiltrate water rapidly so that stormwater does not typically pond in them.

An unpaved road extends from the southwest corner of the site down to the level of the Chehalis River flood plain. A cut slope adjacent to this road is inclined at about 40 percent. The road was used in the past to access a former sewage lagoon that was located on the floodplain. We understand the sewage lagoon was filled in about 10 years ago, although it is shown in Figure 2.3-2.

Figure 2.3-2 shows slope areas that are inclined between 15 and 30 percent, between 30 to 50 percent, and slopes steeper than 50 percent.

2.3.3 Geology

The distribution of surface and near-surface geologic units within the Thurston County site is shown on the Geologic Map, Figure 2.3-3. The unit boundaries are based on our review of previous mapping completed by others (Logan, 1987), airphoto interpretation and field reconnaissance. We also reviewed subsurface exploration logs for a previous project we completed for additions to the Maple Lane facility. Boundaries on the geologic map should be considered approximate.

The near-surface geologic conditions in the developed portion of the site are primarily the result of the most recent glaciation in the Puget Sound region, the Vashon glaciation. During the close of this last glaciation, meltwater streams flowing from the ice deposited sand and gravel over large areas in southern Thurston County, resulting in the formation of outwash plains such as the level prairies in the Grand Mound area. The project site is located on the edge of an outwash terrace that may have marked the southernmost extent of the glacial ice (Logan, 1987).

Prairie Creek later became incised in the terrace deposits. The Chehalis River eroded and deposited material to form the floodplain south of the site.

The recessional outwash at the site typically consists of sand and gravel with varying silt content, cobbles and boulders. It is typically in a medium dense condition. Based on nearby well logs, there are also lenses and layers of silty sand and silt with gravel included within the recessional outwash. The thickness of the recessional outwash underlying the terrace apparently exceeds 60 feet. The recessional outwash is overlain by up to 3 feet of topsoil and silty sand with gravel and organic matter.

Recessional outwash soils generally have moderate to high shear strength, low to moderate compressibility and moderate to high permeability.

Floodplain deposits consisting of sand, silty sand, silt and clay with varying amounts of organic matter in the upper few feet occur in the Chehalis River floodplain south of the developed portion of the site. These deposits are younger than the recessional outwash deposits that underlie the floodplain.

2.3.4 Soils

The near surface soils within the project site have developed on recessional outwash deposits. Distribution of surficial soils at the site is shown on the Soils Map, Figure 2.3-4. The predominant soil series mapped within the site by the NRCS is the Spanaway gravelly sandy loam (Pringle, 1990).

The Spanaway series is derived from granular recessional outwash deposits. The site is mapped by the NRCS as Spanaway gravelly sandy loam, 0 to 5 percent slopes. Although not mapped by the NRCS, the soils in the steep slopes along the southwestern and southeastern margins of the site would classify as Spanaway gravelly sandy loam, 5 to 15 percent slopes. Slopes exceeding 15 percent exist in these areas, but the NRCS does not include a classification for Spanaway series soils for such slopes. Soil type distributions shown in Figure 2.3-4 are a refinement of the NRCS map, based on site-specific topographic and geologic information.

The Spanaway gravely sandy loam, 0 to 5 percent slopes, and 5 to 15 percent slopes, typically consists of surface layers of forest duff or topsoil about ½ foot thick over dark brown silty gravel and sand to depths of up to 3 feet. The underlying soil consists of light brown, medium dense gravel and sand with cobbles. The permeability of the upper silty gravel and sand layer is moderately rapid, while the permeability in the underlying gravel and sand is very rapid.

The Spanaway gravely sandy loam, 0 to 5 percent slopes, is categorized as “Prime farmland if irrigated” (Ecology, 2010).

2.3.5 Geologic Hazard Areas

2.3.5.1 *General*

The Thurston County Critical Areas Ordinance is in the process of being updated as of August 2011. A draft version of the update to the Geologically Hazardous Area portion of the ordinance is in progress (Thurston County Planning Department, 2011). The current version of the Geologically Hazardous Areas was put into effect in the mid 1990s.

Pertinent definitions in the current version of the ordinance are as follows (Section 17.15.200):

Steep Slope

"…an area which is equal to or in excess of fifty percent slope and where there is a break of more than fifteen feet, or where the ground surface rises twelve and one-half feet or more vertically within a horizontal distance of twenty-five feet. This can also include a slope of thirty [to] forty-nine and nine-tenths percent which is defined as a 'landslide hazard area."

Landslide Hazard Areas

"…those areas which are potentially subject to risk of mass movement due to a combination of geologic, topographic, and hydrologic factors; and where the vertical height is fifteen feet or more. The following areas are considered to be subject to landslide hazards:

1. Any area with a combination of:
    a. Slopes of thirty percent or steeper, and
    b. Impermeable subsurface material (typically silt and clay), frequently interbedded with granular soils (predominately sand and gravel), and
    c. Springs of seeping groundwater during the wet season (November to February);
2. Steep slopes of fifty percent or greater;
3. Any areas located on a landslide feature which has shown movement during the past ten thousand years or which is underlain by mass wastage debris from that period of time;
4. Any soil type contained on Table 6 and which does not lie along the shoreline of Puget Sound."

Seismic Hazard Areas

"…those areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement or soil liquefaction, such as artificial fill areas, and areas underlain by glaciolacustrine deposits and/or glacial outwash."

Erosion Hazard Areas

"…land characterized by any of the soil types identified by the Soil Conservation Service as "highly erodible land". This designation pertains to water erosion and not wind erosion. These

areas may not be highly erodible until or unless the soil is disturbed by activities such as clearing or grading."

According to the Thurston County Department of Planning Geologically Hazardous Areas map, no Geologically Hazardous Areas are indicated within or in the immediate vicinity of the site (personal communication with Alfaro Haugen, 2011).

The following sections of this report discuss Geologic Hazard Areas we identified specific to the Thurston County site, using the criteria listed above.

2.3.5.2 *Steep Slopes*

The developed portion of the site has slopes that are less than 5 percent. Steep slopes that locally exceed 50 percent are located along the southern and eastern margins of the terrace portion of the site. These slopes are on the order of 15 to 20 feet in vertical height. The Topography and Slope Map, Figure 2.3-2, shows areas of slopes of 15 to 30 percent, 30 to 50 percent, and greater than 50 percent.

Areas within the site that meet the Thurston County Critical Areas Ordinance criteria for steep slope areas (that is, inclined at 50 percent or steeper) are also shown on the Geologic Hazard Areas Map, Figure 2.3-5. These steep slope areas occur along the southern and eastern margins of the terrace. These areas meet the criteria for steep slopes in the Thurston County Critical Areas Ordinance, but are not officially mapped or identified as such (personal communication with Alfaro Haugen, 2011).

2.3.5.3 *Landslide Hazards*

Areas within the site that meet the Thurston County Critical Areas Ordinance criteria for landslide hazard areas include the steep slopes inclined at 50 percent or greater shown in Figure 2.3-5. These steep slope areas occur along the southern and personal eastern margins of the terrace. These areas meet the criteria for landslide hazards in the Thurston County Critical Areas Ordinance, but are not officially mapped or identified as such.

2.3.5.4 *Seismic Hazards*

Based on our review of the Quaternary Faults and Folds Database (United States Geological Survey, 2011), there are no faults that are mapped within a ten-mile radius of the site.

Based on Site Class mapping for Thurston County (Palmer, et al., 2004), the developable portion of the site is mapped as IBC Site Class C to D (very dense soils and soft rock, to stiff soil), and is also mapped as having a very low susceptibility to liquefaction. The floodplain to the south and west is mapped as having moderate to high susceptibility to liquefaction.

Landslide hazard areas associated with ground shaking are the same as those identified above in Section 2.3.5.3. These areas meet the criteria for landslide and seismic hazards in the Thurston County Critical Areas Ordinance, but are not officially mapped or identified as such.

2.3.5.5 *Erosion Hazards*

We consider the slopes inclined steeper than 15 percent along the southwestern and southeastern portions of the site to be erosion hazard areas because of the loose, granular nature of the Spanaway soils. There are isolated areas within the developed portion of the site where erosion hazards occur, including the detention pond and swale in the northwestern portion of the site. These areas are shown on the Geologic Hazard Areas Map, Figure 2.3-5, and meet the criteria for erosion hazards in the Thurston County Critical Areas Ordinance, but are not officially mapped or identified as such.

2.3.6 Groundwater

2.3.6.1 *Aquifer Systems*

The principal aquifer in the vicinity of the site is the shallow aquifer in the recessional outwash soils. Other aquifers may underlie the shallow aquifer, but are not apparent from the available well logs.

The recessional outwash aquifer is at least 60 feet thick as indicated by well logs in the vicinity. It should be noted that localized lenses and layers of less permeable silty sand and silt soils are included within the recessional outwash deposits, and may affect aquifer characteristics such as groundwater flow and recharge. Groundwater levels measured in the wells and in geotechnical explorations completed within the Thurston County site are generally about 20 to 35 feet below the surface of the terrace. Groundwater within the shallow aquifer likely flows to the southwest, toward the Chehalis River floodplain.

2.3.6.2 *Water Well Data*

A review of records on file with the Washington State Department of Ecology (Ecology, 2011) indicates there are several existing water wells located within ¼ mile of the Thurston County site. The approximate locations of these wells are shown in Figure 2.2-6.

Two of the wells are on the site and currently being used to supply the Maple Lane facility. These wells were drilled in the 1940s, and extend to depths of about 75 feet each (personal communication with Avery, 2011). The two wells are housed in two separate small buildings located a short distance west of the existing administration building.

A summary of pertinent data from the well logs is presented in Table 2.3-1. Many of the well logs indicate only approximate locations. Ground surface elevations were not included on all the logs. Where no ground surface elevation was given, we estimated them from available topographic maps.

Information on groundwater quality was not included on the well logs.

2.3.6.3 *Critical Aquifer Recharge and Wellhead Protection Areas*

The Thurston County Critical Areas Ordinance is in the process of being updated as of August 2011. A draft version of the update to the Critical Aquifer Recharge Area portion of the ordinance is in progress (Thurston County Planning Department, 2011). The current version of the CARAs portion of the ordinance was put into effect in the mid 1990s.

CARAs within Thurston County are classified according to the rating system included in the current Thurston County Critical Areas Ordinance (Section 17.15.505) as follows:

A. "'Category I, extreme aquifer sensitivity' are those areas with provide very rapid recharge with little protection, contain coarse soil textures and soil materials, and are derived from glacial outwash materials. The predominant soils series and types are those listed as Category I in Appendix B, located at the end of this chapter."

B. "'Category II, high aquifer sensitivity' are those areas which provide slightly lower recharge, also provide little protection, and are from materials of glacial deposit. The predominant soils series and types are those listed as Category II in Appendix B, located at the end of this chapter."

C. "'Category III, moderate aquifer sensitivity' are those areas with aquifers present but which have a surface soil material that encourages runoff and slows water entry into the ground. The predominant soils series and types are those listed as Category III in Appendix B, located at the end of this chapter."

D. "'Category IV, low aquifer sensitivity' are those areas of low groundwater availability and whose soil series are derived from basaltic, andesitic or sedimentary rock; or ancient glacial till (more consolidated, more clays at surface) and which have not formed geological formation that provide abundant groundwater. The predominant soils series and types are those listed as Category IV in Appendix B, located at the end of this chapter."

Based on the list provided in the referenced appendix and mapping available from the Thurston County GeoData Center (2011), the developable portion of the site (mapped as Spanaway series soils) is within a Class I CARA. Class II and Class III CARA areas are mapped south of the site.

Wellhead Protection Zones in the vicinity of the site include one associated with the two existing wells at the site, and two separate zones associated with two wells for the Grand Mound Public Water System (Washington State Department of Health, 2011). The wellhead protection zone for the two on-site wells includes the entire site, as shown in Figure 2.3-6.

The two wells for the Grand Mound system are located within about ½ mile north of the site. The associated wellhead protection zones extend northeast of the wells, and do not cross the Thurston County site, also shown in Figure 2.3-6.

SECTION 3. IMPACT OF ALTERNATIVES

3.1 Bremerton Site

3.1.1 Topography

The design of the Westside Prison Reception Center on the Bremerton site will be significantly influenced by surface topography. Ground surface elevations vary by about 40 feet within the area proposed for development in the northwestern portion of the site. Cuts and fills on the order of 10 to 20 feet are expected to be necessary in order to achieve a level building site. Cuts and fills of similar size are also expected to be necessary for the main access road extending northeast from SW Lake Flora Road. Parking areas, access driveways and detention ponds will also require modification of the existing topography.

3.1.2 Geology and Soils

Potentially large volumes of cut and fill will be required for this project. We anticipate that project development will attempt to balance cuts and fills to reduce the amount of import or export soils. Fill soil may be required in excess of that available from on-site excavations. Offsite sources of fill would be partly depleted if they become necessary. Offsite soil disposal sites may need to be used.

The existing recessional drift and glacial till soils contain a significant amount of fines (particles passing the No. 200 sieve) and are therefore sensitive to changes in moisture content. If the moisture content of these soils is more than a few percent above optimum moisture content, they become difficult if not impossible to compact to structural fill specifications. Operation of equipment on these soils will also be difficult during wet weather conditions.

Perched water may occur above the glacial till and also within more permeable lenses of sand within the till. Perched water may be encountered in cuts made into the till, particularly during the normally wet seasons of the year.

Conventional spread footings are likely to be used for this project. The glacial till soils will provide satisfactory support for building foundations and pavements, provided they are in an undisturbed condition. Compacted structural fill extending down to the till will also provide satisfactory support. Settlements of structures supported on the till or properly compacted structural fill are expected to be minor.

Placement of fill and/or structures over peat areas will result in excessive settlements due to the high compressibility of the peat unless the peat is removed.

Temporary construction dewatering for excavations likely consist of pumping from sumps located within the excavations, and is not expected to cause ground settlement in adjacent areas, except possibly in areas underlain by peat soils.

3.1.3 Geologic Hazard Areas

3.1.3.1 *Steep Slopes and Landslide Hazards*

Based on the results of our reconnaissance and review of published geologic information, we conclude there is a low potential for landsliding in the few areas identified on site as having slopes greater than 30 percent. Modification of existing slopes by grading may increase the potential for landsliding if the slopes are not properly designed. Also, uncontrolled surface and subsurface water flow resulting from slope alterations could increase the potential for sliding locally.

3.1.3.2 *Seismic Hazards*

The entire site may be subjected to moderate to strong shaking from various earthquake sources. The site's response to the shaking will be most pronounced in peat areas located in low lying portions of the site. Fault rupture is not expected to impact the proposed development.

Earthquake-induced sliding is generally not expected to impact the proposed development, except in localized slope areas where shallow slides in loose slope materials may occur.

3.1.3.3 *Erosion Hazards*

Slopes exceeding 15 percent and having a vertical height of 10 feet or greater are considered to be erosion hazard areas within the site. Some of these slopes will be disturbed during construction, which will increase their erosion potential. Construction activities that typically affect erosion potential include removal of vegetation and topsoil, grading, fill placement, and spoils removal or stockpiling. Erosion could lead to silt-laden runoff flowing offsite, resulting in water quality degradation of local surface waters.

Post construction erosion impacts are not expected to be substantial, provided that sufficient engineering controls such as Best Management Practices (BMPs) are put into place and that the site soils are stabilized through permanent landscaping.

3.1.4 Groundwater

The creation of impervious surfaces will cause a net reduction in groundwater recharge and shallow groundwater flow. Installation of underground utilities within the site could alter shallow groundwater flow paths by diverting shallow groundwater toward permeable backfill within utility trenches.

The potential reduction of groundwater recharge to regional aquifers used by nearby wells is not considered to be significant because of the relatively small area of the site with respect to the remaining undeveloped area within and around the site.

Temporary dewatering of excavations might be needed during construction to control groundwater inflow, particularly during the normally wet seasons of the year. These occurrences are expected to be highly localized and of relatively short duration. Temporary dewatering is not expected to reduce the amount of recharge to local aquifers. There will be no

long-term groundwater withdrawal related to the project as water will be brought onsite from municipal sources.

Potential impacts on groundwater quality include surface spills of fuels, lubricants and other chemicals used during construction and operation of the proposed development. Turbidity and suspended solids from construction activities generally do not affect groundwater. Near-surface sources of potential groundwater contaminants are less likely to affect the regional aquifers, which occur at greater depths and are typically overlain by one or more sequences of low permeability deposits.

3.2 Mason County Site

3.2.1 Topography

The design of the Westside Prison Reception Center on the Mason County site will be influenced somewhat by surface topography. Ground surface elevations vary by about 5 feet within the area proposed for development in the central portion of the site. The ground surface elevations vary by about 10 feet within the portion of the proposed development that will extend into the lower portion of the hillside that ascends to the south property line. Portions of the two access roads will descend about 25 vertical feet from the level of West Dayton Airport Road (SR 102) down to the central portion of the site.

Cuts and fills on the order of 5 to 10 feet are expected to be necessary in order to achieve a level building area in the central and southern portions of the site. Cuts and fills on the order of 10 to 20 feet are expected to be necessary for the access roads. Parking areas, driveways and detention ponds will also require modification of the existing topography.

3.2.2 Geology and Soils

We anticipate that project development will attempt to balance cuts and fills to reduce the amount of import or export soils. Relatively small volumes of cut and fill will be required for this project, primarily for grading related to construction of the two access roads and for the portion of the building area near the south property line.

Sufficient fill soil will likely be available from onsite excavations. Some export of excavated soils may be necessary. Offsite soil disposal sites may need to be used.

The existing recessional drift soils contain some fines (particles passing the No. 200 sieve) and are therefore somewhat sensitive to changes in moisture content. If the moisture content of these soils is more than a few percent above optimum moisture content, they become difficult to compact to structural fill specifications. Operation of equipment on these soils will also be difficult during wet weather conditions.

Conventional spread footings are likely to be used for this project. The recessional outwash soils will provide satisfactory support for building foundations and pavements, provided they are in an undisturbed condition. Compacted structural fill extending down to the outwash will also provide satisfactory support. Settlements of structures supported on the outwash or properly compacted structural fill are expected to be minor.

Some groundwater may be encountered in deeper excavations. Temporary construction dewatering for excavations will likely consist of pumping from sumps located within the excavations, and is not expected to cause ground settlement in adjacent areas.

3.2.3 Geologic Hazard Areas

3.2.3.1 *Steep Slopes and Landslide Hazards*

Based on the results of our reconnaissance and review of published geologic information, we conclude there is a low potential for landsliding in the few areas identified on site as having slopes greater than 30 percent. Modification of existing slopes by grading may increase the potential for landsliding if not properly designed. Also, uncontrolled surface and subsurface water flow resulting from slope alterations could increase the potential for sliding locally.

3.2.3.2 *Seismic Hazards*

The entire site may be subjected to moderate to strong shaking from various earthquake sources. Fault rupture is not expected to impact the proposed development.

Earthquake-induced sliding is generally not expected to impact the proposed development, except in localized slope areas where shallow slides in loose slope materials may occur.

3.2.3.3 *Erosion Hazards*

Slopes exceeding 15 percent and having a vertical height of 10 feet or greater are considered to be erosion hazard areas within the site. Some of these slopes will be disturbed during construction, which will increase their erosion potential. Construction activities that typically affect erosion potential include removal of vegetation and topsoil, grading, fill placement, and spoils removal or stockpiling. Erosion could lead to silt-laden runoff flowing offsite, resulting in water quality degradation of local surface waters.

Post construction erosion impacts are not expected to be substantial, provided that sufficient engineering controls such as BMPs are put into place and that the site soils are stabilized through permanent landscaping.

3.2.4 Groundwater

The creation of impervious surfaces will cause a net reduction in groundwater recharge and shallow groundwater flow. Installation of underground utilities within the site could alter shallow groundwater flow paths by diverting shallow groundwater toward permeable backfill within utility trenches.

The potential reduction of groundwater recharge to regional aquifers used by nearby wells is not considered to be significant because of the relatively small area of the site with respect to the remaining undeveloped area within and around the site.

Temporary dewatering of excavations might be needed during construction to control groundwater inflow, particularly during the normally wet seasons of the year. These occurrences are expected to be highly localized and of relatively short duration. Temporary

dewatering is not expected to reduce the amount of recharge to local aquifers. There will be no long-term groundwater withdrawal related to the project as water will be brought onsite from municipal sources.

Potential impacts on groundwater quality include surface spills of fuels, lubricants and other chemicals used during construction and operation of the proposed development. Turbidity and suspended solids from construction activities generally do not affect groundwater. Near-surface sources of potential groundwater contaminants, if not properly contained, could affect the regional aquifers.

3.3 Thurston County Site

3.3.1 Topography

The design of the Westside Prison Reception Center on the Thurston County site will be little influenced by surface topography, as the portion of the site to be developed is nearly level. Ground surface elevations only vary by a few feet, except in isolated areas (artificial depressions) in the western portion of the site. Minor cuts and fills (less than 5 feet) are expected to be necessary in order to achieve a level building site. Minor cuts and fills are also expected for new driveways, parking areas and stormwater infiltration features.

3.3.2 Geology and Soils

Small volumes of cut and fill may be required for this project. We anticipate that project development will attempt to balance cuts and fills to reduce the amount of import or export soils. Excavated onsite soils are expected to be used for fills. Offsite sources of fill might be needed depending on final design grades. Offsite soil disposal sites may need to be used if an excess volume of excavated soil occurs.

The existing recessional drift soils contain some fines (particles passing the No. 200 sieve) and are therefore somewhat sensitive to changes in moisture content. If the moisture content of these soils is more than a few percent above optimum moisture content, they may become difficult to compact to structural fill specifications. Operation of equipment on these soils may also be difficult during wet weather conditions.

Conventional spread footings are likely to be used for this project. The recessional outwash soil will provide satisfactory support for building foundations and pavements, provided they are in an undisturbed condition. Compacted structural fill extending down to the outwash will also provide satisfactory support. Settlements of structures supported on the outwash or properly compacted structural fill are expected to be minor.

Temporary construction dewatering for excavations will likely consist of pumping from sumps located within the excavations, and is not expected to cause ground settlement in adjacent areas.

3.3.3 Geologic Hazard Areas

3.3.3.1 *Steep Slopes and Landslide Hazards*

Based on the results of our reconnaissance and review of published geologic information, we conclude there is a low to moderate potential for landsliding in the steep slope along the southern margin of the developed portion of the site. Modification of some of the existing slopes by grading may result from this project. Uncontrolled surface and subsurface water flow near the top of the slopes could increase the potential for sliding locally.

3.3.3.2 *Seismic Hazards*

The entire site may be subjected to moderate to strong shaking from various earthquake sources. Fault rupture is not expected to impact the proposed development.

Earthquake-induced sliding is generally not expected to impact the proposed development, except in localized steep slope areas along the southern and eastern perimeter of the site where shallow slides in loose slope materials may occur.

3.3.3.3 *Erosion Hazards*

The steep slopes along the southern and eastern perimeter of the site are considered to be erosion hazard areas. However, these slopes are not likely to be disturbed during construction, which would otherwise increase their erosion potential. Construction activities that typically affect erosion potential include removal of vegetation and topsoil, grading, fill placement, and spoils removal or stockpiling. Erosion could lead to silt-laden runoff flowing offsite, resulting in water quality degradation of local surface waters.

Post construction erosion impacts are not expected to be substantial, provided that sufficient engineering controls such as BMPs are put into place and that the site soils are stabilized through permanent landscaping.

3.3.4 Groundwater

The creation of impervious surfaces will cause a net reduction in groundwater recharge and shallow groundwater flow. The potential reduction of groundwater recharge to regional aquifers used by the onsite and nearby wells is not considered to be significant because of the relatively small area of the site with respect to the remaining undeveloped area within and around the site.

Temporary dewatering of excavations might be needed during construction to control groundwater inflow, particularly during the normally wet seasons of the year. These occurrences are expected to be highly localized and of relatively short duration. Temporary dewatering is not expected to reduce the amount of recharge to local aquifers.

Long-term groundwater withdrawal related to the existing onsite wells will continue to occur. Additional water needed for project operation will be brought onsite from municipal sources.

Potential impacts on groundwater quality include surface spills of fuels, lubricants and other chemicals used during construction and operation of the proposed development. Turbidity and suspended solids from construction activities generally do not affect groundwater. Near-surface sources of potential groundwater contaminants, if not properly contained, could affect the regional aquifers.

3.4 No Action Alternative

3.4.1 Bremerton Site

The Bremerton site would remain undeveloped and forested for the short-term. There would be no impacts to either the earth or groundwater elements of the environment. There would be no change to the existing geologic hazards, groundwater flow patterns and groundwater recharge to regional aquifers.

Re-development of the site in the long term could occur, however, as the site is within the SKIA and could be developed for industrial and manufacturing uses. In this case, impacts to the earth and groundwater environment would likely be similar as for the proposed Westside Reception Center.

3.4.2 Mason County Site

The Mason County site would remain undeveloped and forested for the short-term. There would be no impacts to either the earth or groundwater elements of the environment. There would be no change to the existing geologic hazards, groundwater flow patterns and groundwater recharge to regional aquifers.

Re-development of the site in the long term could occur, however. Future uses could include residential, industrial and manufacturing development. In these cases, impacts to the earth and groundwater environment would likely be similar as for the proposed Westside Reception Center.

3.4.3 Thurston County Site

The existing buildings, paved areas and infrastructure across the entire site would remain and continue to be vacant. No change in impacts to the existing earth and groundwater environment would occur.

Redevelopment of the site could occur in the long-term as decided by the State of Washington. Impacts to the earth and groundwater elements of the environment would depend on how much of the site is redeveloped, and whether or not some or all of the existing structures would be demolished and /or replaced.

SECTION 4. PROPOSED MITIGATION

4.1 Mitigation Applicable to All Alternatives

4.1.1 General

Site-specific subsurface explorations, geotechnical evaluation and development of geotechnical design recommendations for specific elements of the proposed development should be completed prior to and during design. These activities should address the specific requirements in the relevant sections of the applicable local codes pertaining to Geologically Hazardous Areas and Critical Aquifer Recharge Areas, as applicable.

4.1.2 Topography

Cuts and fills of varying heights will be required for development on each of the sites. Slopes created by cuts that range up to 20 feet in height can be satisfactorily made at inclinations of 2H:1V (horizontal to vertical) or flatter. Cuts that cannot be sloped back could be supported with engineered retaining walls such as conventional gravity retaining walls, mechanically stabilized earth (MSE) walls, soldier pile and tieback walls, or soil nail walls.

Structural fill placed to support the building and paved areas should be properly compacted. Permanent fill slopes will generally be inclined at 2H:1V or flatter. Retaining walls can be used to limit the lateral extent of fills. Potential retaining wall options for fill applications include concrete cantilever walls and MSE walls.

4.1.3 Geology and Soils

The potential impacts related to existing geology and soil conditions on site development generally include:

- Settlement of structures and fill embankments, and
- Earthwork constraints associated with stripping of unsuitable soils, and excavating, hauling, placing and compacting moisture sensitive soils.

Potential settlement issues can be mitigated by using proper site preparation techniques that include removal of surficial organic materials (vegetation, forest duff, topsoil and/or shallow peat deposits and large roots) from beneath proposed structure and pavement locations. Existing fill soils, if encountered during site grading, should be removed and replaced if found to be in a loose or uncompacted condition.

Appropriate foundation support systems would be designed and constructed so that settlements would be within acceptable limits. Foundation systems would be designed in accordance with applicable IBC and local agency codes.

Impacts associated with earthwork using the onsite moisture sensitive soils can be mitigated by limiting earthwork activities to the dry season, typically considered to extend from June through October in the Puget Sound region. Even during the normally dry season, periods of wet weather may occur, and it may be necessary to limit earthwork activities during such occurrences. Also, it may be necessary to moisture condition (dry) soils if they become too wet

during wet weather or if their natural moisture content is significantly above the optimum for compaction.

If earthwork occurs during the wet seasons of the year, the associated activities may need to be limited to windows of dry weather, or free-draining fill soil may need to be imported to the site.

Surficial materials removed during clearing and stripping could be reused in landscaped areas.

Temporary shoring can be used to support cuts for utilities and other underground features where open cuts would not be feasible. The shoring if needed, and all open cuts, should be designed and constructed in accordance with Washington State regulations.

Temporary dewatering may be needed during construction of subsurface features. Dewatering systems can be designed and controlled to limit impacts to nearby areas, such as subsidence.

4.1.4 Geologic Hazard Areas

4.1.4.1 *Steep Slopes and Landslide Hazards*

Mitigation for construction in steeply sloping areas will consist of limiting soil disturbance and removal of vegetation, proper design and construction of cut and fill slopes, use of retaining structures where necessary, implementing features that control or avoid surface water or groundwater flow, and slope revegetation. Design would include slope stability evaluations where appropriate, including identification of an adequate buffer distance.

4.1.4.2 *Seismic Hazards*

The risk of strong ground shaking all three sites is moderate to high, as with all sites in the Puget Sound region. The impact of strong ground shaking can be mitigated by designing the proposed buildings and other structures in accordance with the seismic provisions of the applicable building codes (such as the 2009 IBC) at the time of design.

Shallow slides induced by strong ground shaking can be mitigated by reducing slope height and providing adequate drainage and vegetation on and near the slope.

4.1.4.3 *Erosion Hazards*

For construction, a Temporary Erosion and Sediment Control Plan (TESC) and a Stormwater Pollution Prevention Plan (SWPPP) should be developed and implemented which would provide for the interception and treatment of potential silt-laden runoff that could occur during clearing, grading, construction of structures, and site stabilization. The TESC and SWPPP plans should specify measures to prevent silt-laden runoff from leaving the construction site. The plans would describe specific requirements for soil- and ground-cover protection measures, conveyance systems, sedimentation facilities and water quality monitoring. The TESC and SWPPP plans should be prepared in accordance with the Washington State Department of Ecology (Ecology) and local agency requirements.

Site-specific erosion control measures that would be implemented for mitigating short and long-term impacts include the following:

- Limit clearing and grading to construction, laydown and staging areas to minimize the area of exposed soil.
- Complete site preparation, excavations and fill placement during the drier summer and early fall months to the extent practical.
- Route surface water through temporary drainage channels around and away from disturbed soils or exposed slopes.
- Cover exposed soil stockpiles and exposed slopes with plastic sheeting, as appropriate.
- Use straw mulch and erosion control matting to stabilize graded areas and reduce rain and runoff impacts to slopes.
- Use mobile sedimentation tank trucks to collect and contain turbid water, if needed. Alternatively, polymers could be used to reduce water turbidity.
- Construct temporary sedimentation ponds, check dams and filter (silt) fences to remove as much sediment as possible prior to returning runoff to natural drainages.
- Intercept and drain water from any surface seeps where they are encountered.
- During periods of wet weather, stabilize disturbed areas using mulch and/or hydroseeding within an appropriate time interval.
- Construct stabilized construction entrances and tire cleaning areas.
- Designate procedures to be used for disposal of wood wastes and soil spoils materials that cannot be reused onsite.
- Conduct routine monitoring of the construction site to see that the erosion and sediment control features are operating as intended and to repair or augment the features, as appropriate.
- Allow for temporary cessation of construction activities under certain limited circumstances, if weather conditions warrant.

Following construction, fill embankment slopes and cut slopes should be promptly vegetated (such as hydroseeding) to protect against erosion during project operation.

4.1.5 Groundwater

Potential reductions in the quantity of shallow groundwater flow can be mitigated by including Low Impact Development (LID) stormwater features in the design of the new facility. LID measures could include partial infiltration of stormwater generated from developed portions of the site. Infiltration measures could include pervious pavements, bioretention swales, rain gardens, and other features. Infiltration facilities should be placed close to existing wetlands and drainages where possible.

Mitigation measures to address the potential diversion of shallow groundwater along underground utilities could include installation of impermeable seepage barriers at intervals within the trench backfill.

Mitigation measures to address potential groundwater quality impacts include implementation of construction BMPs, TESC and SWPPP plans, spill prevention and control plans, construction materials and waste management plans, and monitoring of stormwater discharged to the groundwater systems. These measures would conform to Ecology and local agency code requirements, specifically as they relate to aquifer protection.

4.2 Bremerton Site

4.2.1 Topography

Cuts and fills for the proposed development will likely be quite extensive because of the sloping terrain represented by the series of ridges and swales across the site. Cuts and fills of up to 20 feet are anticipated. Slopes created by cuts that range up to 20 feet in height can be satisfactorily made at inclinations of 2H:1V (horizontal to vertical) or flatter. Cuts that cannot be sloped back could be supported with engineered retaining walls such as conventional gravity retaining walls, MSE walls, soldier pile and tieback walls, or soil nail walls.

4.2.2 Geology and Soils

Potential settlement issues can be mitigated by avoiding construction in areas underlain by peat soils beneath proposed structure and pavement locations. Partial or complete removal of peat could also be considered.

4.2.3 Geologic Hazard Areas

4.2.3.1 *Seismic Hazards*

Structures should be located outside of soft soil areas such as peat areas within the site, or the soft soils could be removed.

4.2.4 Groundwater

The quantity of water that can be infiltrated will be limited by the low permeability of the near-surface glacial till soils.

No mitigation related to groundwater withdrawal (that is, an on-site well system) will be needed, as all water for the Reception Center will be piped to the site from municipal sources.

4.3 Mason County Site

4.3.1 Topography

Cuts and fills for the proposed development will likely be relatively small within the central and southern portions of the site. However, cuts and fills of up to 20 feet are anticipated for the two access roads that will descend the steep slopes in the northern portion of the site. Slopes created by cuts that range up to 20 feet in height can be satisfactorily made at inclinations of 2H:1V (horizontal to vertical) or flatter. Cuts that cannot be sloped back could be supported with

engineered retaining walls such as conventional gravity retaining walls, MSE walls, soldier pile and tieback walls, or soil nail walls.

4.3.2 Groundwater

The quantity of water that can be infiltrated may be limited by the thickness of the recessional outwash soils and the depth to the groundwater.

No mitigation related to groundwater withdrawal (that is, an on-site well system) will be needed, as all water for the Reception Center will be piped to the site from municipal sources.

4.4 Thurston County Site

4.4.1 Topography

Cuts and fills for the proposed development will likely be minor because of the nearly level terrain across the site. Cuts and fills of less than 5 feet are anticipated. Steep slopes are not likely to be created during grading. Any cut slopes needed are likely to have limited height and will be inclined at 2H:1V or flatter.

4.4.2 Geology and Soils

Potential settlement issues can be mitigated by using proper site preparation techniques that include removal of building demolition debris from beneath proposed structure and pavement locations.

4.4.3 Groundwater

The quantity of water that can be infiltrated is relatively high due to the high permeability of the near-surface recessional outwash soils.

No mitigation related to groundwater withdrawal will be needed, as the existing wells onsite will continue to be used at their current output. Supplemental water needed for the Reception Center will be piped to the site from municipal sources.

Section 5. SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Other than permanent modification of topography within steeply sloping areas of the three proposed Westside Reception Center sites, no significant unavoidable adverse impacts related to the Earth and Groundwater elements of the environment are anticipated from project construction and operation.

SECTION 6. LIMITATIONS

We have prepared this report for the Washington State Department of Corrections, Integrus Architecture, EA|Blumen, their authorized agents and regulatory agencies for the Draft EIS for the Westside Prison Reception Center to be located in Western Washington.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices for geotechnical engineering in this area at the

time this report was prepared. The conclusions, recommendations, and opinions presented in this report are based on our professional knowledge, judgment and experience. No warranty or other conditions, express or implied, should be understood.

Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments should be considered a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Please refer to Appendix A titled "Report Limitations and Guidelines for Use" for additional information pertaining to use of this report.

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Table 2.1-1
WATER WELL CHARACTERISTICS
BREMERTON SITE
T23N, R01W

Section[1]	Quarter Section	Quarter-Quarter Section	Estimated Elevation[2] (feet)	Completion Date	Well Type[3]	Depth of Well (feet)	Completion Interval (feet)	Well Casing Diameter (inches)	Water-Bearing Material	Static Water Level (feet)[4]	Date Measured
15	SW	SE	-- [320]	4/7/76	D	95	90-95	6	Sand and gravel	55	4/7/76
15	SE	SW	-- [360]	8/5/02	D	98	93-98	6	Sand, gravel	62	8/6/02
22	NW	NE	-- [360]	6/21/78	D	149	144-149	6	Sand and gravel	119	6/21/78
22	NW	NE	-- [360]	12/29/75	D/I	101	95-100	6	Sand and gravel	68	12/29/75
22	SE	NW	-- [370]	8/21/97	D	108	103-108	6	Sand and gravel	74	8/21/97

Notes:

[1] Approximate water well locations are shown on Figure 2.1-6.

[2] Elevations in brackets are estimated from USGS 7.5-minute Belfair, Washington, quadrangle topographic map. Elevation datum: NAVD 1929.

[3] Well type is designated as follows: D – domestic well, De – Dewatering well, M – Municipal well, C – Community well, I – Irrigation well, O – Other.

[4] Static water level is depth measured from the top of well.

"—" = information was not included in well log.

Table 2.2-1
WATER WELL CHARACTERISTICS
MASON COUNTY SITE
T21N, R04W

Section[1]	Quarter Section	Quarter-Quarter Section	Estimated Elevation[2] (feet)	Completion Date	Well Type[3]	Depth of Well (feet)	Completion Interval (feet)	Well Casing Diameter (inches)	Water-Bearing Material	Static Water Level (feet)[4]	Date Measured
3	SE	SW	-- [290]	6/23/80	D	98	--	6	Sand and gravel	18	6/23/80
4	SE	NE	-- [310]	12/06/87	O	58	48-58	2	Sand and gravel	43	12/06/87
4	SE	SE	-- [310]	12/7/01	D	121	113-118	6	Sand and gravel	35	12/7/01

Notes:

[1] Approximate water well locations are shown on Figure 2.2-6.

[2] Elevations in brackets are estimated from USGS 7.5-minute Shelton Valley and Skokomish Valley quadrangle topographic maps. Elevation datum: NGVD 1929.

[3] Well type is designated as follows: D – domestic well, De – Dewatering well, M – Municipal well, C – Community well, I – Irrigation well, O – Other.

[4] Static water level is depth measured from the top of well.

"—" = information was not included in well log."

Table 2.3-1
WATER WELL CHARACTERISTICS
THURSTON COUNTY SITE
T15N, R03W

Section[1]	Quarter Section	Quarter-Quarter Section	Estimated Elevation[2] (feet)	Completion Date	Well Type[3]	Depth of Well (feet)	Completion Interval (feet)	Well Casing Diameter (inches)	Water-Bearing Material	Static Water Level (feet)[4]	Date Measured
10	SE	SE	-- [160]	3/17/03	D	79	74-79	6	Sand and gravel	31	3/17/03
10	SE	SE	-- [160]	1/26/00	D	50	--	6	Sand and gravel	20	1/26/00
11	SW	NW	-- [160]	3/29/05	D	59	--	6	Gravel	25	3/29/05
11	SW	NW	164	--	I	60	--	6	Sand and gravel	27	--
11	SW	NW	165	12/16/59	I	52	--	6	Sand and gravel	32	12/16/59
11	SW	SW	-- [160]	10/6/04	D	62	--	6	Sand and gravel	32	10/6/04
11	SW	SE	-- [160]	7/14/95	D	59.6	--	6	Sand and gravel	25	7/14/95
11	SW	SE	-- [160]	--	D/I	42	--	6	--	20	--
11	SE	SW	-- [160]	3/24/93	D	70	--	6	Sand and gravel	33	3/24/93
11	SE	SW	-- [160]	12/87	D	60	--	6	Gravel	36	12/87
11	SE	SW	160	6/4/96	O/M	87.5	71-84	8	Sand and gravel	20.36	6/17/96
14	NW	NW	150	1941	--	74	62-74	10	Sand and gravel	30.5	--
14	NW	NW	170	9/8/70	D	62	--	6	Sand and gravel	30	9/8/70
14	NE	NW	-- [160]	3/14/94	D	65	--	6	Sand and gravel	36	3/14/94

Section[1]	Quarter Section	Quarter-Quarter Section	Estimated Elevation[2] (feet)	Completion Date	Well Type[3]	Depth of Well (feet)	Completion Interval (feet)	Well Casing Diameter (inches)	Water-Bearing Material	Static Water Level (feet)[4]	Date Measured
14	NE	NW	-- [160]	1/27/93	D	58.5	--	6	Sand and gravel	29	1/27/93
14	NE	NW	-- [160]	12/29/03	D	58	--	6	Gravel	28	12/29/03
14	NE	NW	-- [160]	12/24/03	D	58	--	6	Gravel	28	12/24/03
14	NE	NW	-- [160]	5/20/93	D	68	--	6	Sand and gravel	35	5/20/93
14	NE	NW	-- [160]	2/15/02	D	38	--	6	Sand and gravel	18	2/15/02
14	NW	SW	-- [140]	5/15/02	D	59	--	6	Gravel	24	5/15/02
14	NE	SW	-- [140]	8/8/03	D	78	--	6	Gravel	30	8/8/03

Notes:

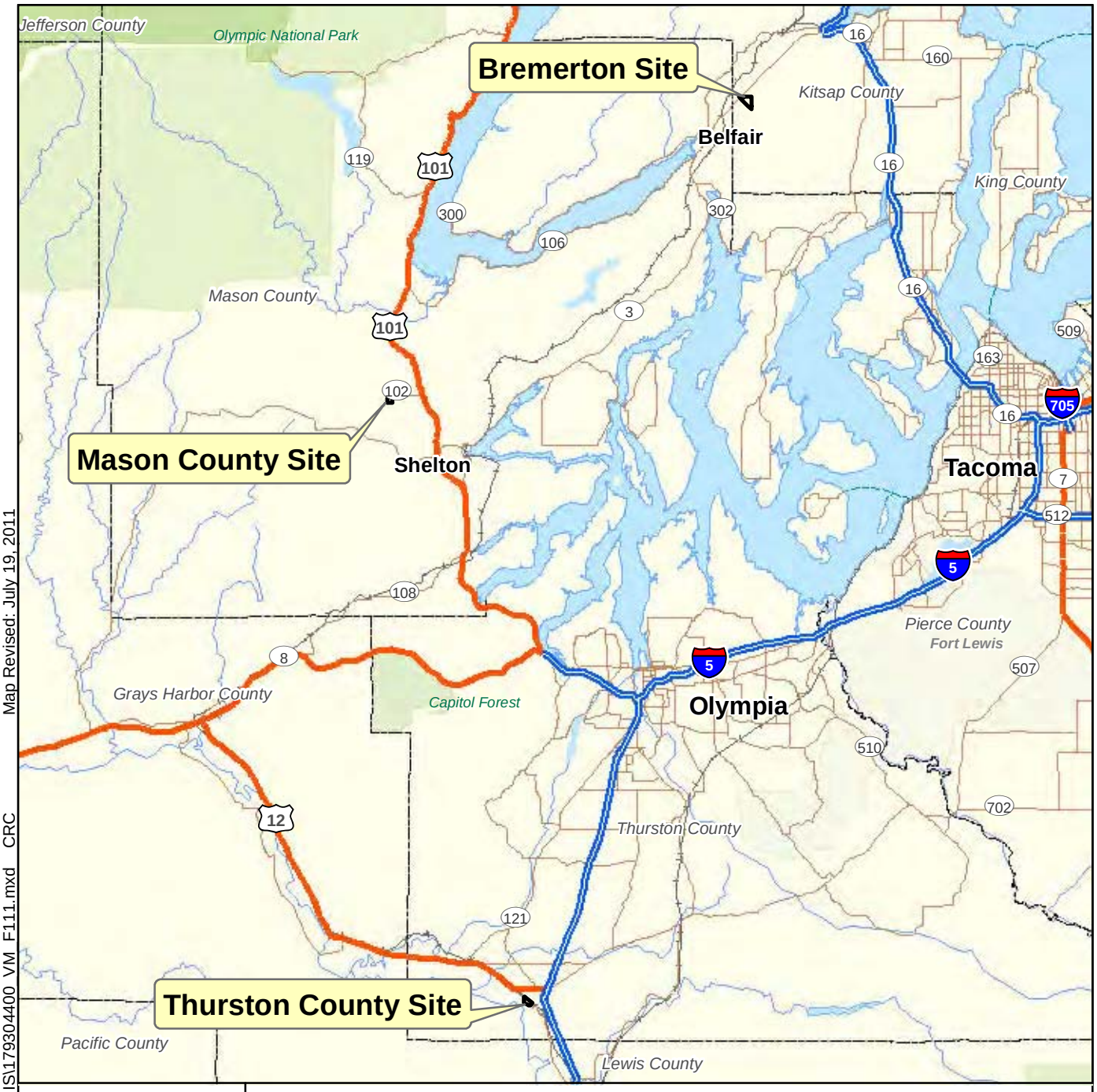
[1] Approximate water well locations are shown on Figure 2.3-6.

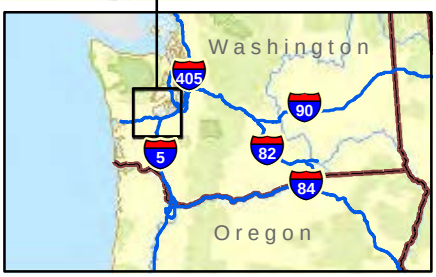
[2] Where the elevations are missing on the well logs, elevations are given in brackets as estimated from the USGS 7.5-minute Rochester quadrangle topographic map. Elevation datum: NGVD 1929.

[3] Well type is designated as follows: D – domestic well, De – Dewatering well, M – Municipal well, C – Community well, I – Irrigation well, O – Other.

[4] Static water level is depth measured from the top of well.

"—" = information was not included in well log.





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Notes:
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Data Sources: ESRI Data & Maps, Street Maps 2008
US Topographic Map from ESRI ArcGIS Online
Transverse Mercator, Zone 10 N North, North American Datum 1983
North arrow oriented to grid north

General Vicinity Map

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Figure 1.1-1

Map Revised: July 19, 2011
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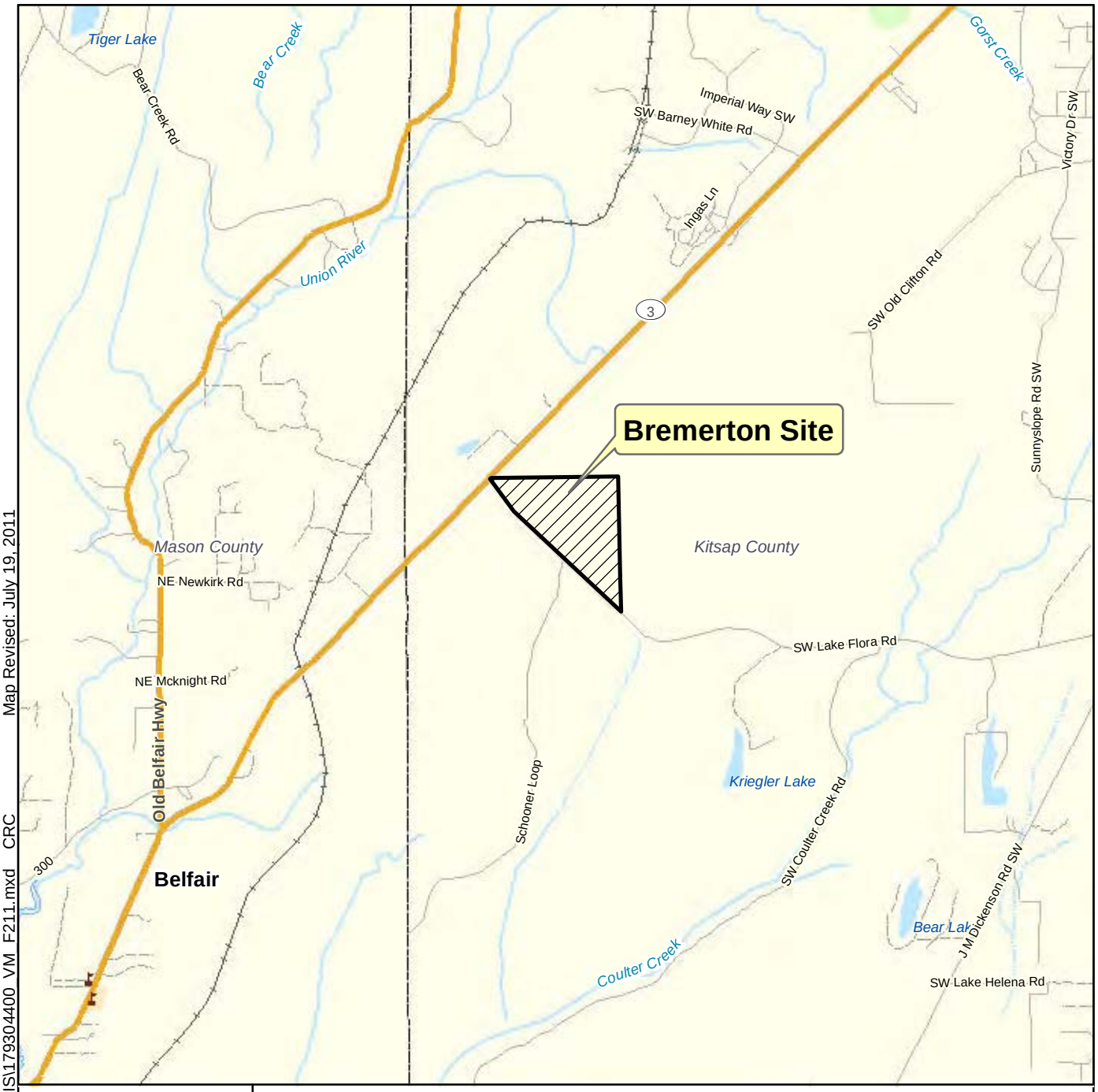

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Data Sources: ESRI Data & Maps, Street Maps 2008
US Topographic Map from ESRI ArcGIS Online
Transverse Mercator, Zone 10 N North, North American Datum 1983
North arrow oriented to grid north

Vicinity Map
Bremerton Site

Draft EIS
Department of Corrections
Westside Reception Center

GeoEngineers

Figure 2.1-1

Map Revised: July 19, 2011
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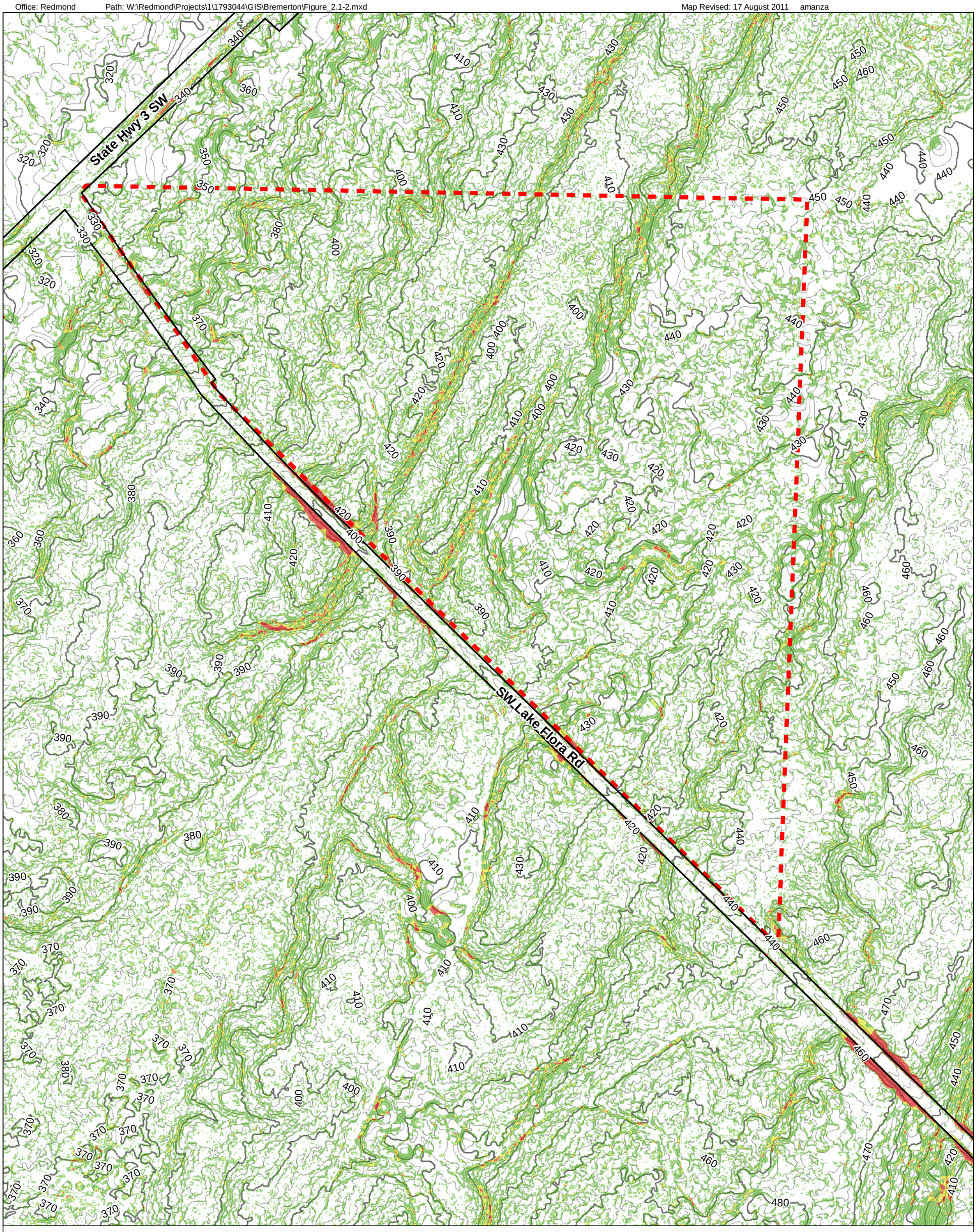

Legend

- 2 Foot Contour Line
- 10 Foot Contour Line
- Site Boundary

Slope Percent

- 15 - 30
- 30 - 40
- >40

N W E S

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Feet

Data Source: Contours and topography generated from LiDAR provided by the Puget Sound LiDAR Consortium (2000).

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

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Topography and Slope Map
Bremerton Site

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Figure 2.1-2

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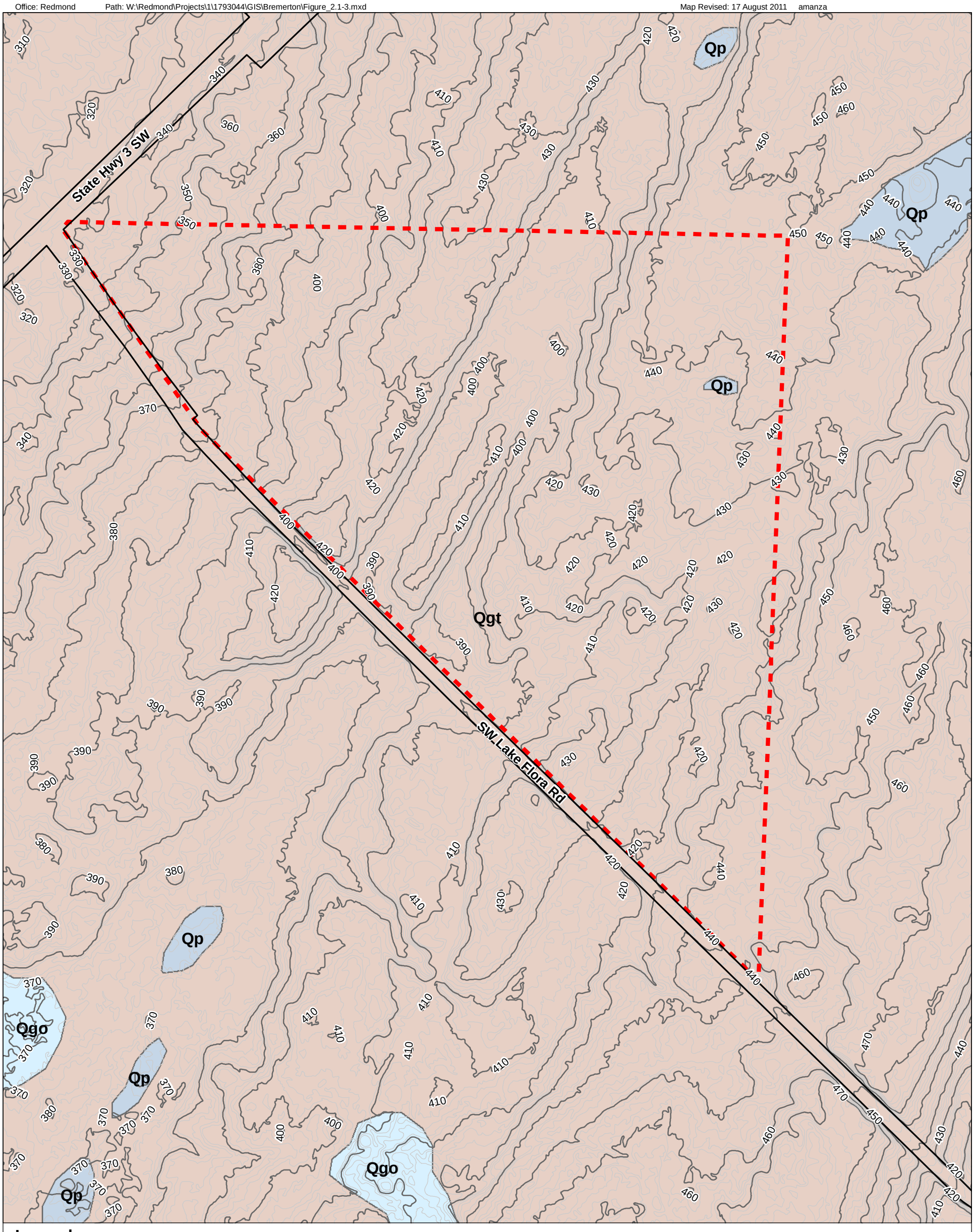

Legend

- 2 Foot Contour Line
- 10 Foot Contour Line
- Site Boundary

Geologic Unit

- Vashon Recessional Outwash - Qgo
- Vashon Till - Qgt
- Peat - Qp

N W E S

400 0 400
Feet

Data Source: Contours and topography generated from LiDAR provided by the Puget Sound LiDAR Consortium (2000). Geology based on geologic map by Polenz, et al (2009).

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

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Geologic Map
Bremerton Site

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Figure 2.1-3

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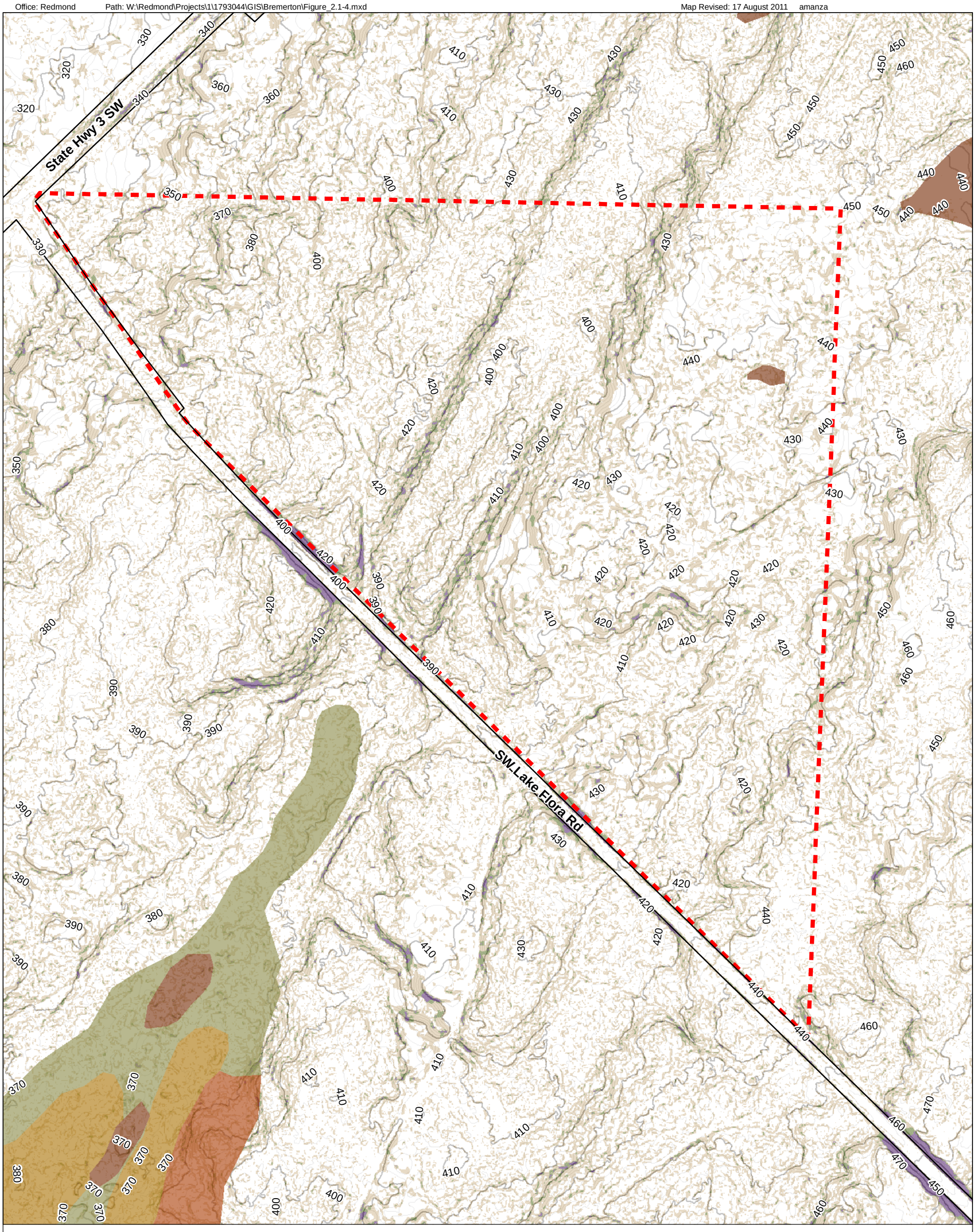

Legend

- 2 Foot Contour Line
- 10 Foot Contour Line
- Site Boundary

Alderwood Very Gravelly Sandy Loam Units

- 0 - 15 percent slopes
- 15 - 30 percent slopes
- 30 - 40 percent slopes
- >40 percent slopes

Other Soil Units

- Alderwood Very Gravelly Sandy Loam
- McKenna Gravelly Loam
- Neilton Gravelly Loamy Sand, 0 - 3 percent slopes
- Shalcar Muck

N W E S

400 0 400
Feet

Data Source: Contours and topography generated from LiDAR provided by the Puget Sound LiDAR Consortium (2000).
Soil units provided by McMurphy (1980) and amended by GeoEngineers based on topographic information and site reconnaissance.

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Notes:
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Soils Map
Bremerton Site

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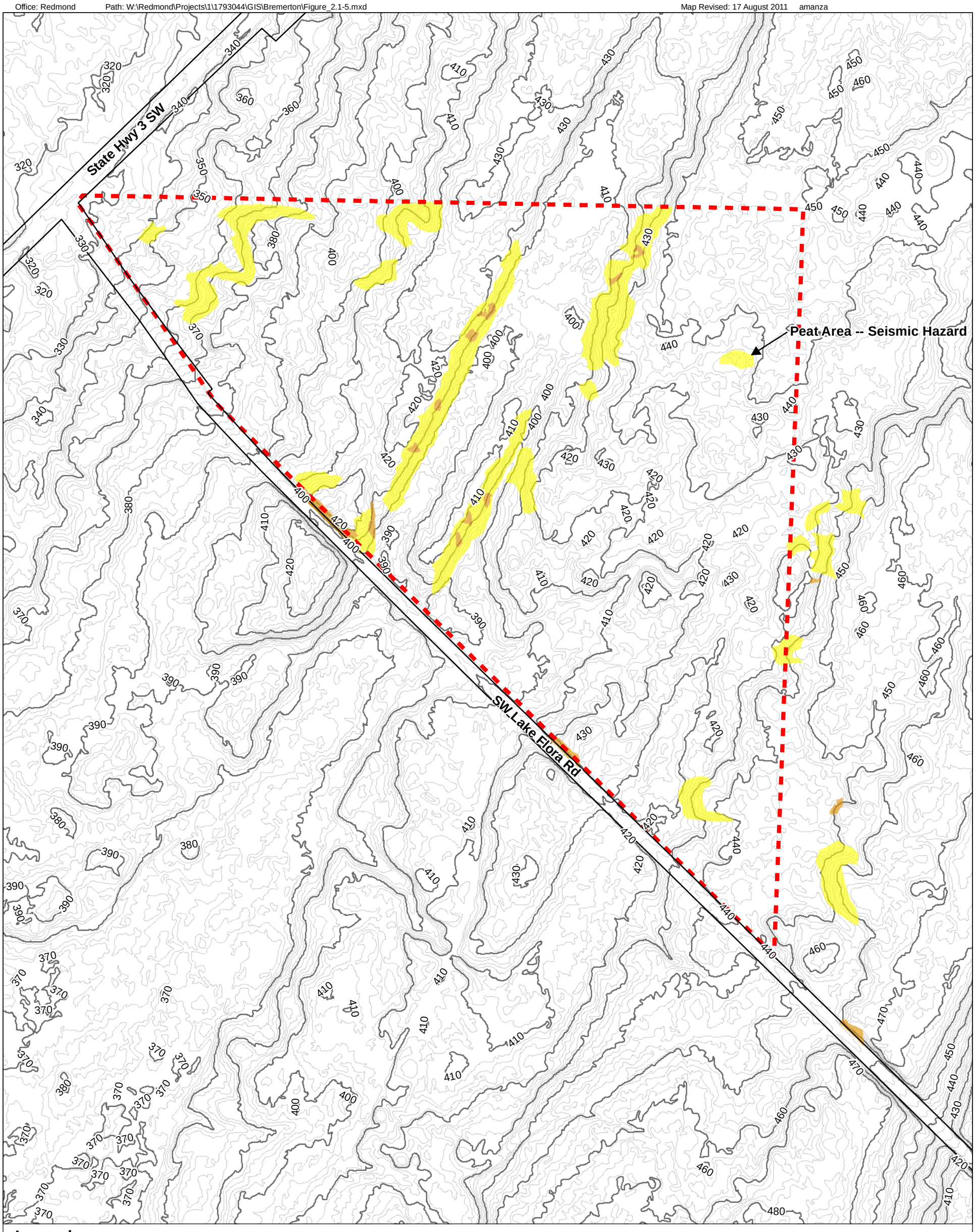
Figure 2.1-4

Office: Redmond Path: W:\Redmond\Projects\1\1793044\GIS\Bremerton\Figure_2.1-5.mxd Map Revised: 17 August 2011 amanza



Legend

- 2 Foot Contour Line
- 10 Foot Contour Line
- Site Boundary

Geologically Hazardous Areas

- High Hazard (Slope Hazard, Seismic Hazard)
- Moderate Hazard (Slope Hazard, Seismic Hazard, Erosion Hazard)

N W E S

400 0 400
Feet

Data Source: Contours and topography generated from LiDAR provided by the Puget Sound LiDAR Consortium (2000). Geological Hazard Areas based on McMurphy (1980), topography, and site reconnaissance.

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Notes:
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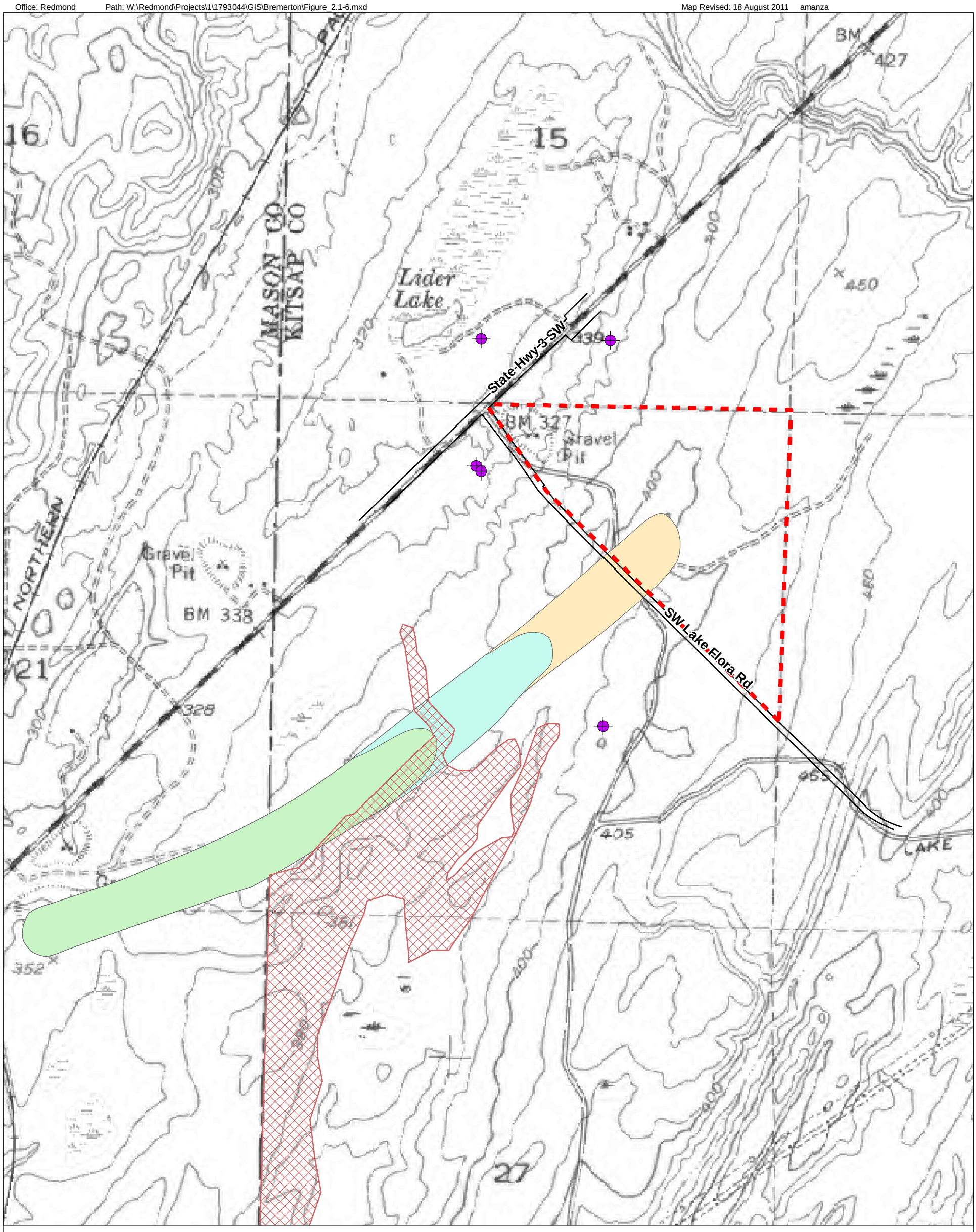
Geological Hazard Areas Map
Bremerton Site

Draft EIS
Department of Corrections
Westside Reception Center

GeoEngineers

Figure 2.1-5

Office: Redmond Path: W:\Redmond\Projects\1\1793044\GIS\Bremerton\Figure_2.1-6.mxd Map Revised: 18 August 2011 amanza



Legend

- Well
- Site Boundary
- Class II Critical Aquifer Recharge Area
- Wellhead Protection Zone (1 year)
- Wellhead Protection Zone (5 year)
- Wellhead Protection Zone (10 year)

N
W E
S

1,000 0 1,000
Feet

Data Source: Contours and topography generated from LiDAR provided by the Puget Sound LiDAR Consortium (2000).
Well data from WA State Department of Ecology well log database (2011). WHP data from WA State Department of Health (2011).

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Notes:
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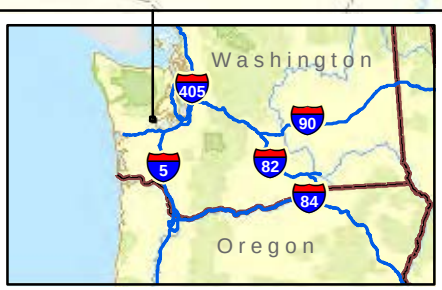
Critical Aquifer Recharge Areas Map
Bremerton Site

Draft EIS
Department of Corrections
Westside Reception Center

GeoEngineers

Figure 2.1-6



N
W E
S

1 0 1
Miles

Notes:
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Data Sources: ESRI Data & Maps, Street Maps 2008
US Topographic Map from ESRI ArcGIS Online
Transverse Mercator, Zone 10 N North, North American Datum 1983
North arrow oriented to grid north

Vicinity Map
Mason County Site

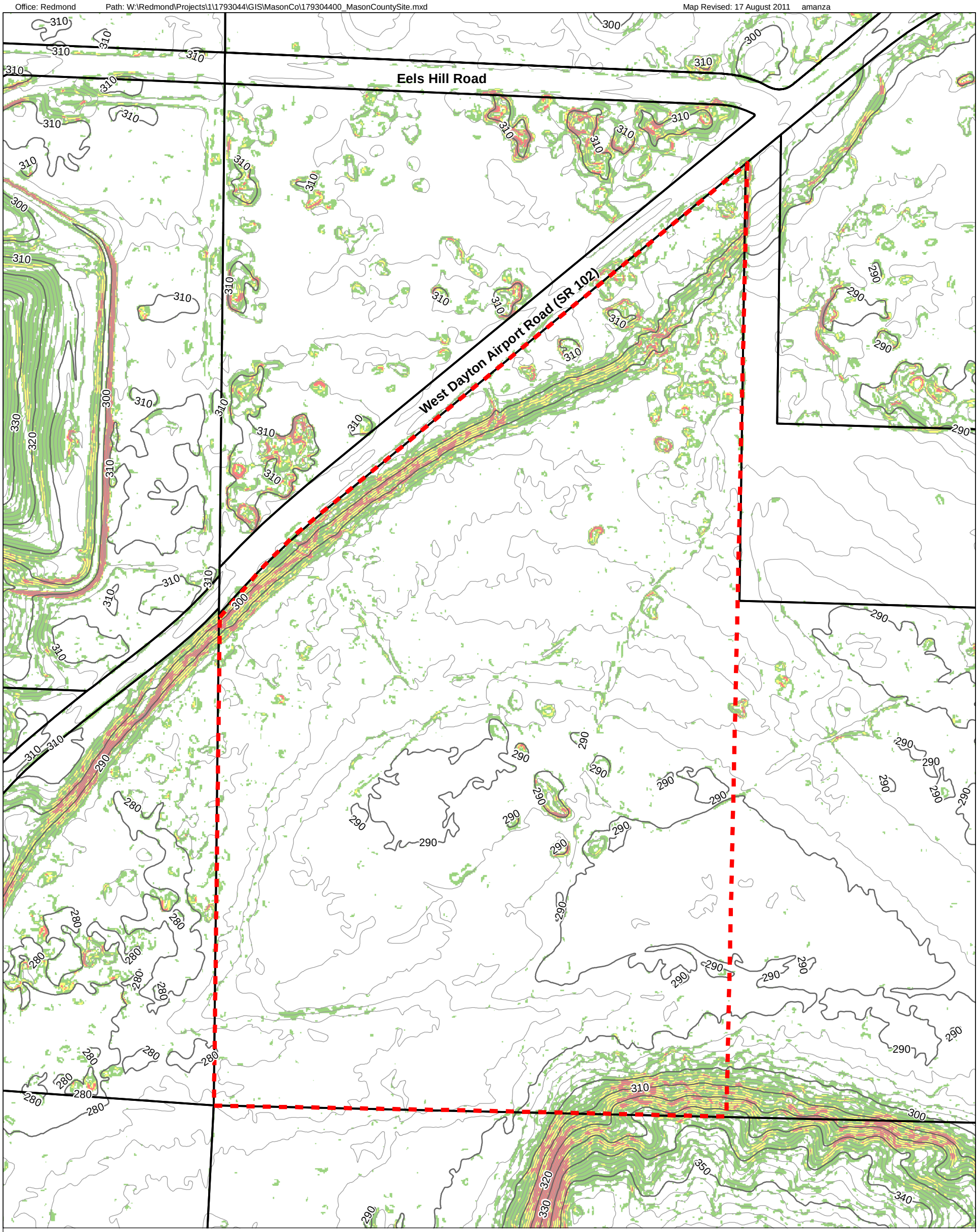
Draft EIS
Department of Corrections
Westside Reception Center

GeoEngineers

Figure 2.2-1

Map Revised: July 19, 2011
Path: W:\Redmond\Projects\1\1793044\GIS\1793044400_VM_F221.mxd CRC
Office: RED

Office: Redmond Path: W:\Redmond\Projects\1\1793044\GIS\MasonCo\179304400_MasonCountySite.mxd Map Revised: 17 August 2011 amanza



Legend

- 2 Foot Contour Line
- 10 Foot Contour Line
- Site Boundary

Slope Percent

- 15 - 30
- 30 - 40
- >40

N
W E
S

250 0 250
Feet

Data Source: Contours and topography generated from LiDAR provided by the Puget Sound LiDAR Consortium (2002).
Parcel Boundaries provided by Mason County.

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Notes:
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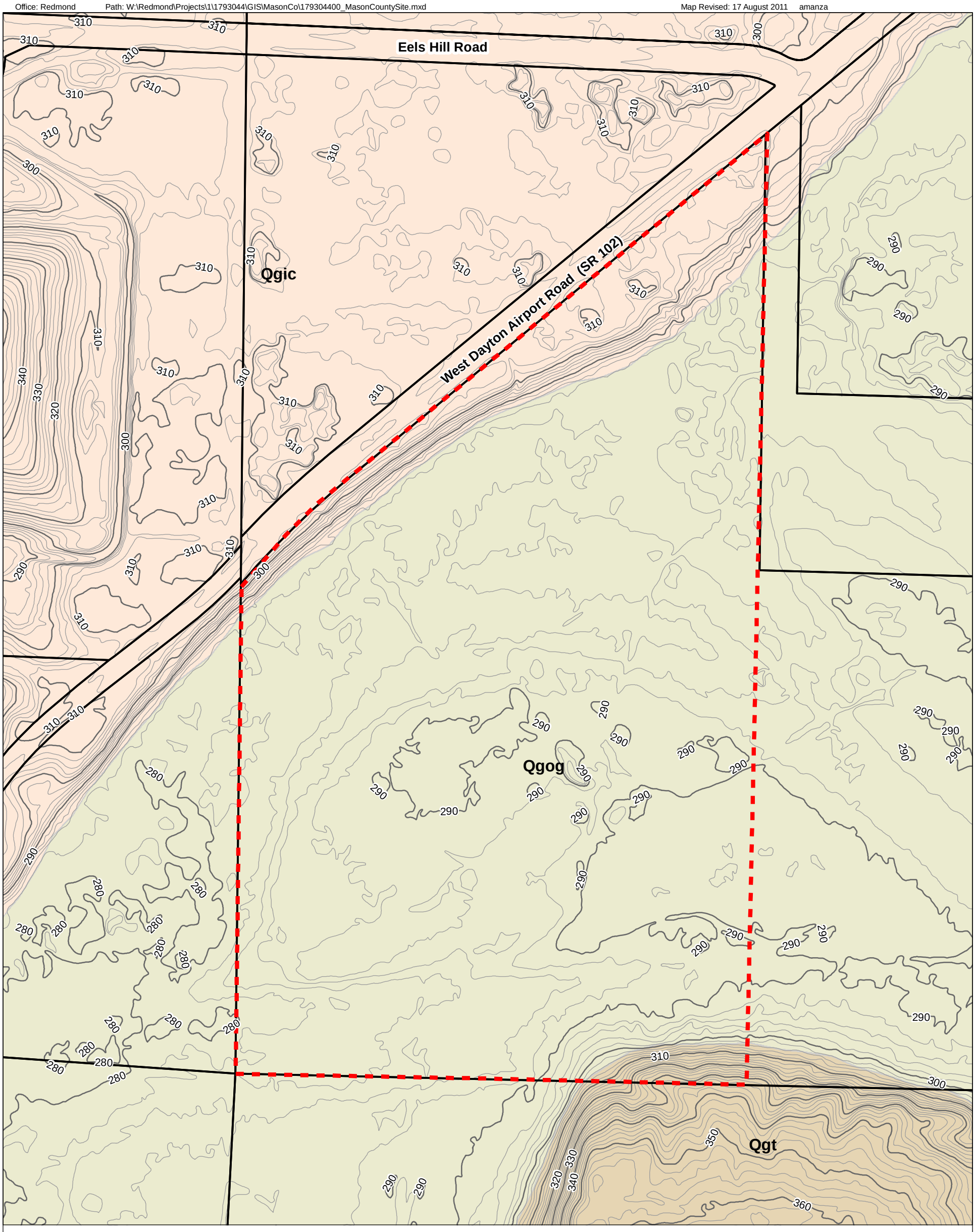
Topography and Slope Map
Mason County Site

Draft EIS
Department of Corrections
Westside Reception Center

GeoEngineers

Figure 2.2-2

Office: Redmond Path: W:\Redmond\Projects\1\1793044\GIS\MasonCo\179304400_MasonCountySite.mxd Map Revised: 17 August 2011 amanza



Legend

- 2 Foot Contour Line
- 10 Foot Contour Line
- Site Boundary

Geologic Unit

- Vashon Undifferentiated Ice Contact Deposits (Qgic)
- Vashon Recessional Outwash Gravel (Qgog)
- Vashon Till (Qgt)

N W E S

250 0 250

Feet

Data Source: Contours and topography generated from LiDAR provided by the Puget Sound LiDAR Consortium (2002). Geology provided by Washington Department of Natural Resources.

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Notes:
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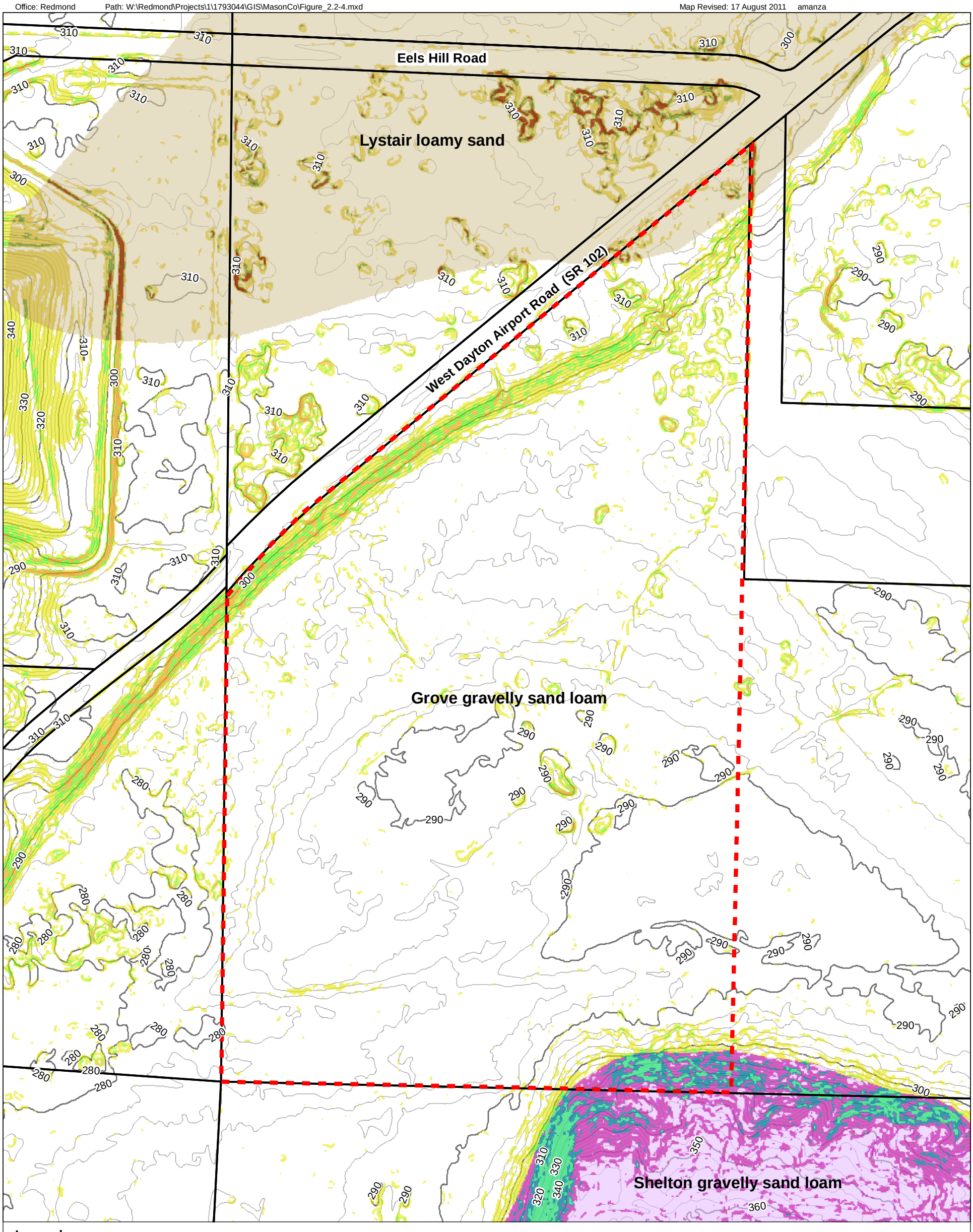
Geologic Map
Mason County Site

Draft EIS
Department of Corrections
Westside Reception Center

GeoEngineers

Figure 2.2-3

Office: Redmond Path: W:\Redmond\Projects\1\1793044\GIS\MasonCo\Figure_2.2-4.mxd Map Revised: 17 August 2011 amanza



Legend

- 2 Foot Contour Line
- 10 Foot Contour Line
- Site Boundary

Grove Gravelly Sandy Loam
- 0 - 15 percent slopes
- 15 - 30 percent slopes
- 30 - 40 percent slopes
- >40 percent slopes

Shelton Gravelly Sandy Loam
- 0 - 15 percent slopes
- 15 - 30 percent slopes
- 30 - 40 percent slopes
- >40 percent slopes

Lystair Loamy Sand
- 0 - 15 percent slopes
- 15 - 30 percent slopes
- 30 - 40 percent slopes
- >40 percent slopes

N W E S

250 0 250
Feet

Data Source: Contours and topography generated from LiDAR provided by the Puget Sound LiDAR Consortium (2002).
Soil units provided by Ness and Fowler (1960) and amended by GeoEngineers based on topographic information.

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Notes:
1. The locations of all features shown are approximate.
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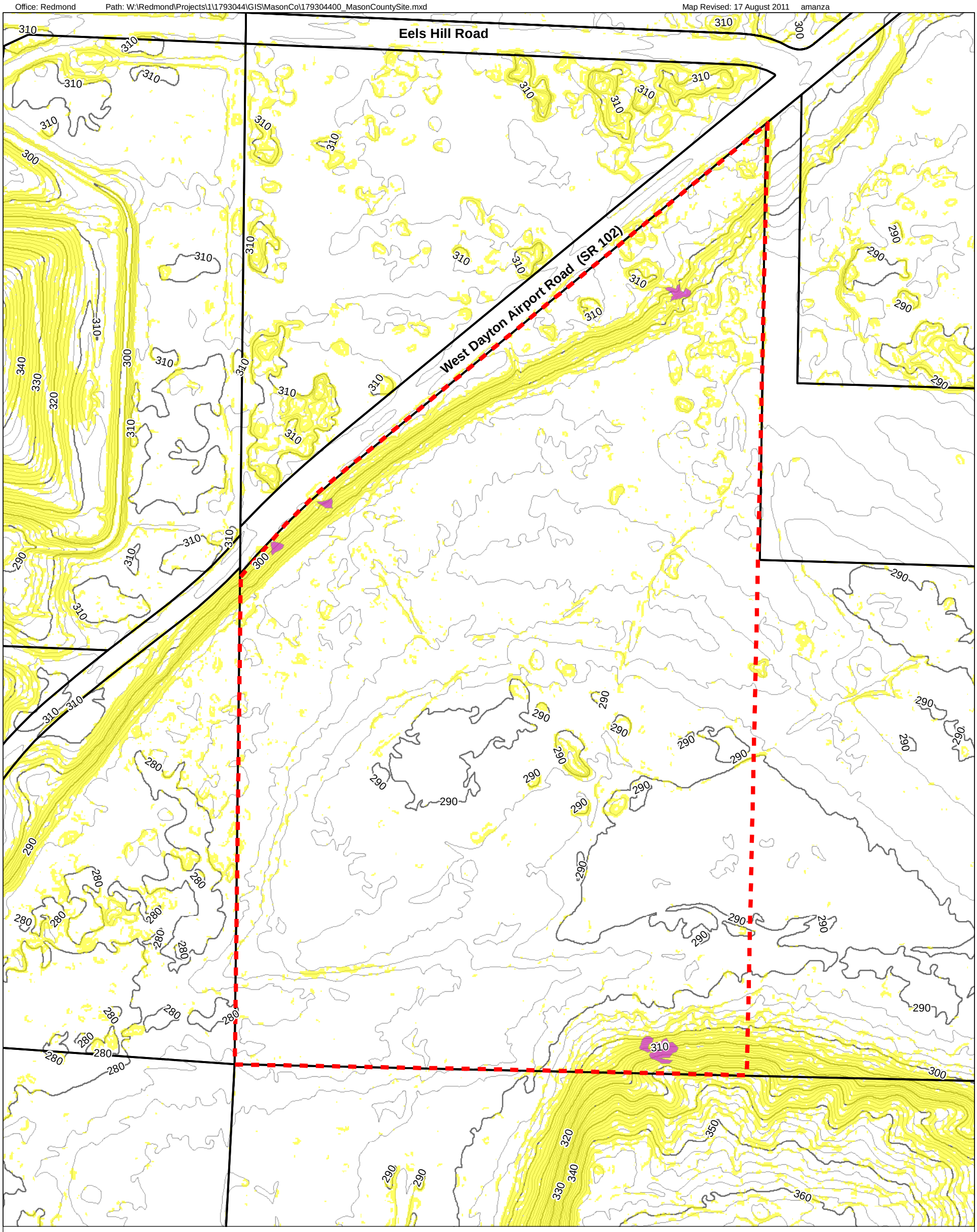
Soils Map
Mason County Site

Draft EIS
Department of Corrections
Westside Reception Center

GeoEngineers

Figure 2.2-4

Office: Redmond Path: W:\Redmond\Projects\1\1793044\GIS\MasonCo\179304400_MasonCountySite.mxd Map Revised: 17 August 2011 amanza



Legend

- 2 Foot Contour Line
- 10 Foot Contour Line
- Site Boundary
- Landslide and Seismic Hazard
- Erosion Hazard

N
W E
S

250 0 250
Feet

Data Source: Contours and topography generated from LiDAR provided by the Puget Sound LiDAR Consortium (2002).
Critical Areas based on Ness and Fowler (1960) and topography.

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Notes:
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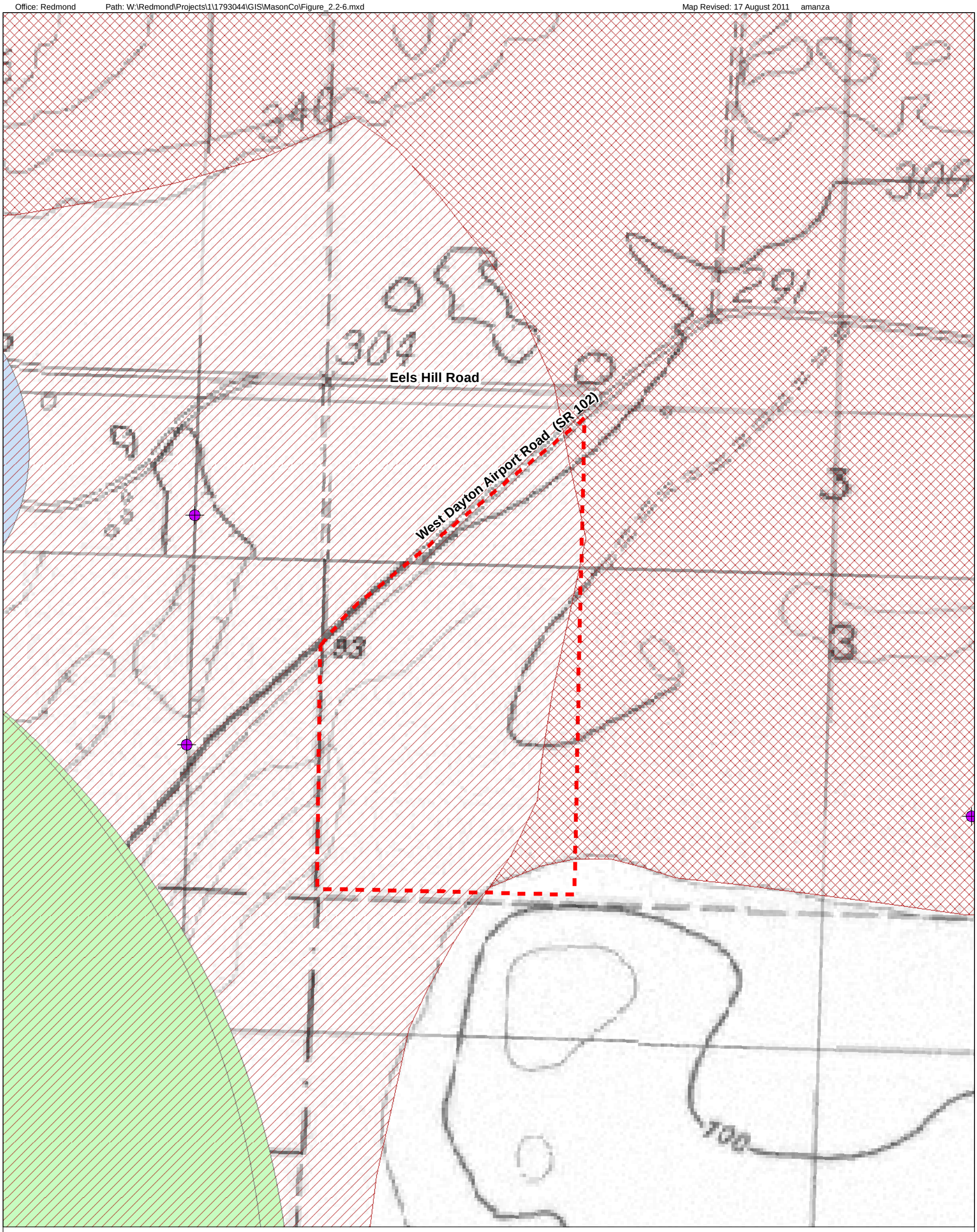
Geological Hazard Areas Map
Mason County Site

Draft EIS
Department of Corrections
Westside Reception Center

GeoEngineers

Figure 2.2-5

Office: Redmond Path: W:\Redmond\Projects\1\1793044\GIS\MasonCo\Figure_2.2-6.mxd Map Revised: 17 August 2011 amanza



Legend

- Well
- Site Boundary
- Class I Critical Aquifer Recharge Area
- Class II Critical Aquifer Recharge Area
- Wellhead Protection Zone (10 year)
- Wellhead Protection Zone (no duration assigned)

N
W E
S

500 0 500
Feet

Data Source: Contours and topography generated from LiDAR provided by the Puget Sound LiDAR Consortium (2002).
Well data from WA State Department of Ecology well log database (2011). WHP data from WA State Department of Health (2011).

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Notes:
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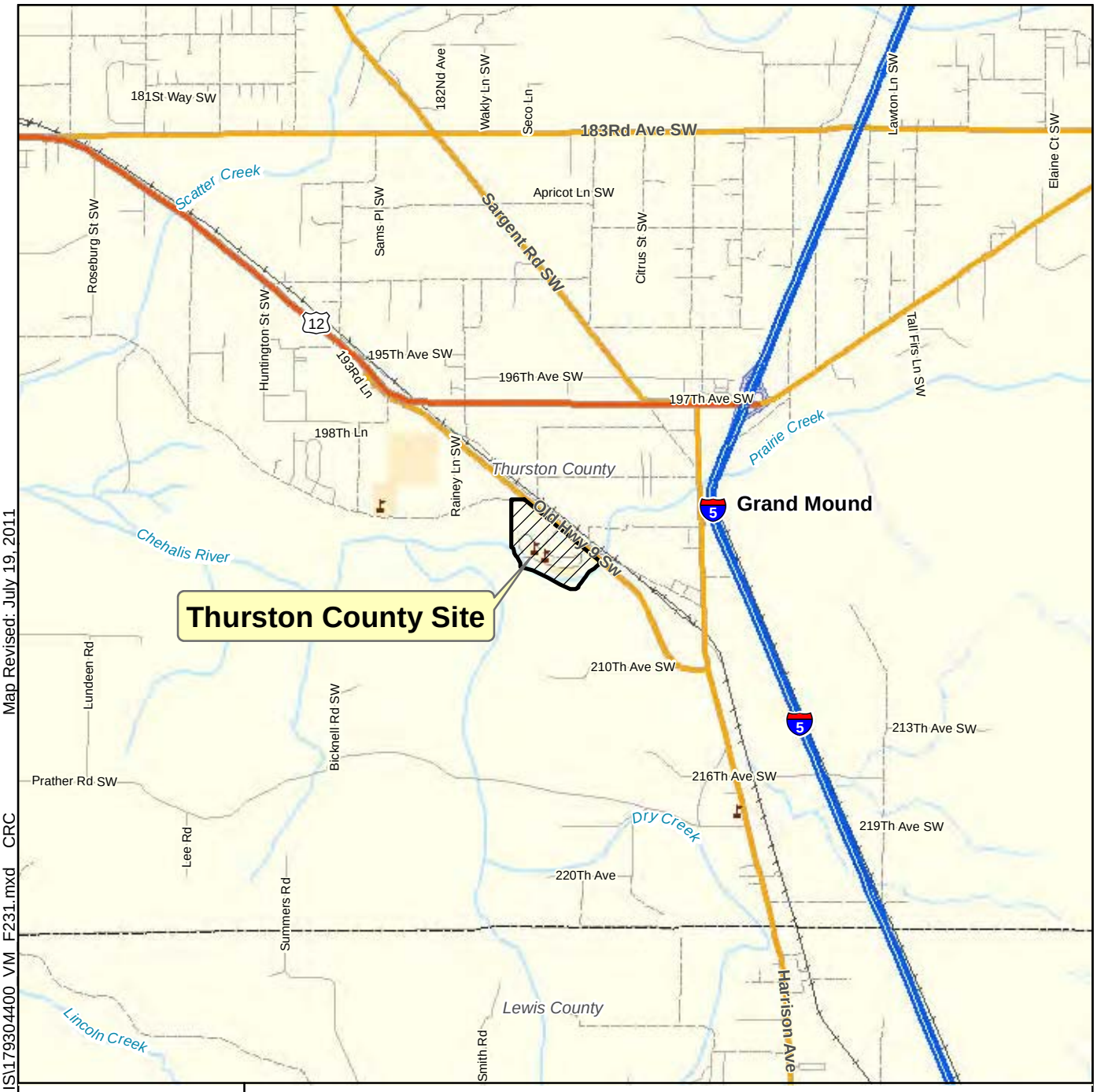
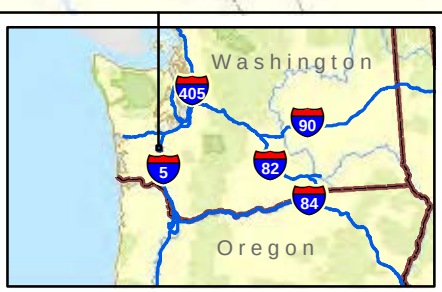
Critical Aquifer Recharge Areas Map
Mason County Site

Draft EIS
Department of Corrections
Westside Reception Center

GeoEngineers

Figure 2.2-6





N
W E
S

1 0 1
Miles

Notes:
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Data Sources: ESRI Data & Maps, Street Maps 2008
US Topographic Map from ESRI ArcGIS Online
Transverse Mercator, Zone 10 N North, North American Datum 1983
North arrow oriented to grid north

Office: RED Path: W:\Redmond\Projects\1\1793044\GIS\179304400_VM_F231.mxd CRC Map Revised: July 19, 2011

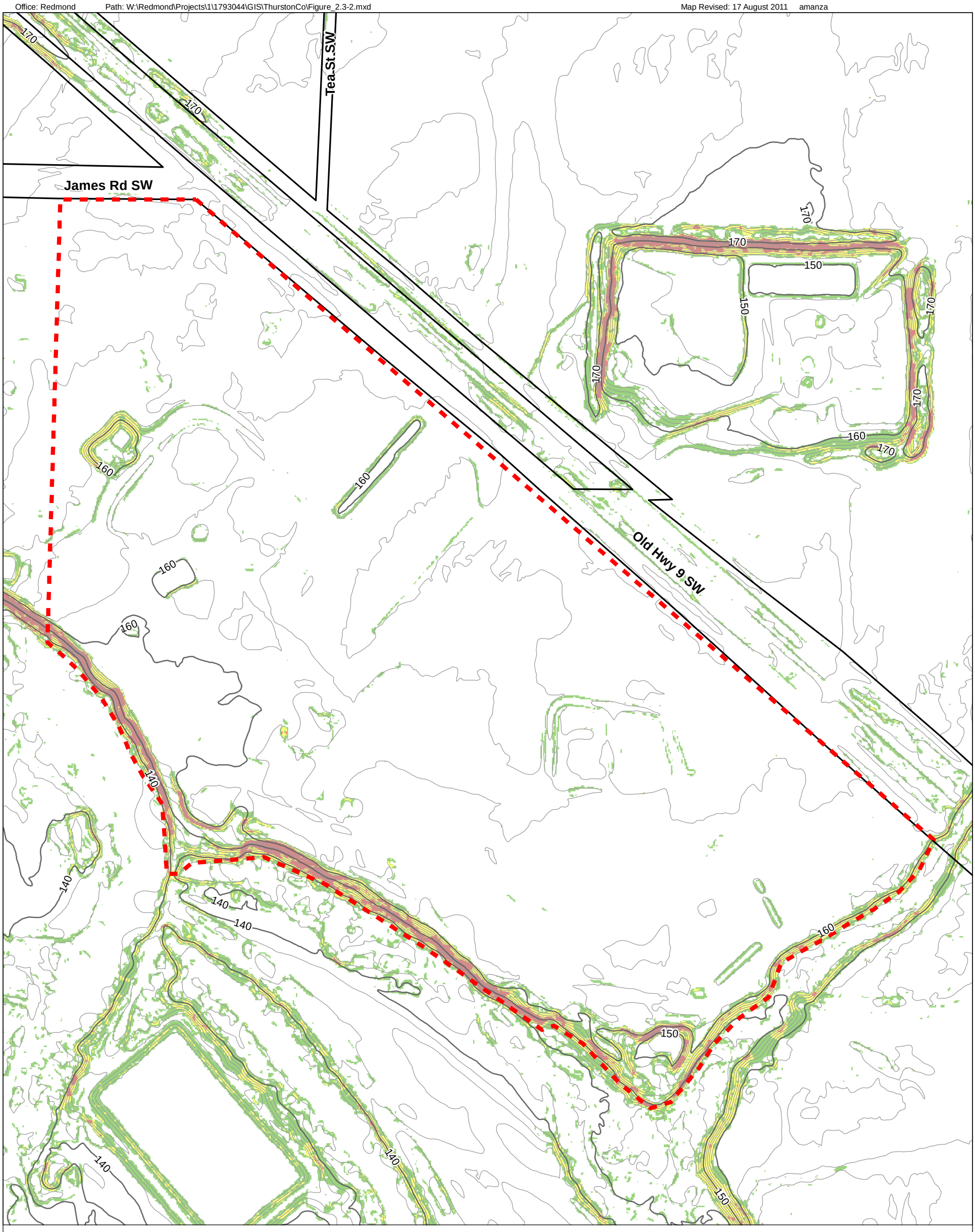
Vicinity Map
Thurston County Site

Draft EIS
Department of Corrections
Westside Reception Center

GeoEngineers

Figure 2.3-1

Office: Redmond Path: W:\Redmond\Projects\1\1793044\GIS\ThurstonCo\Figure_2.3-2.mxd Map Revised: 17 August 2011 amanza



Legend

- 2 Foot Contour Line
- 10 Foot Contour Line
- Site Boundary

Slope Percent

- 15 - 30
- 30 - 50
- >50

N W E S

300 0 300

Feet

Data Source: Contours and topography generated from LiDAR provided by the Puget Sound LiDAR Consortium (2002).

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Notes:
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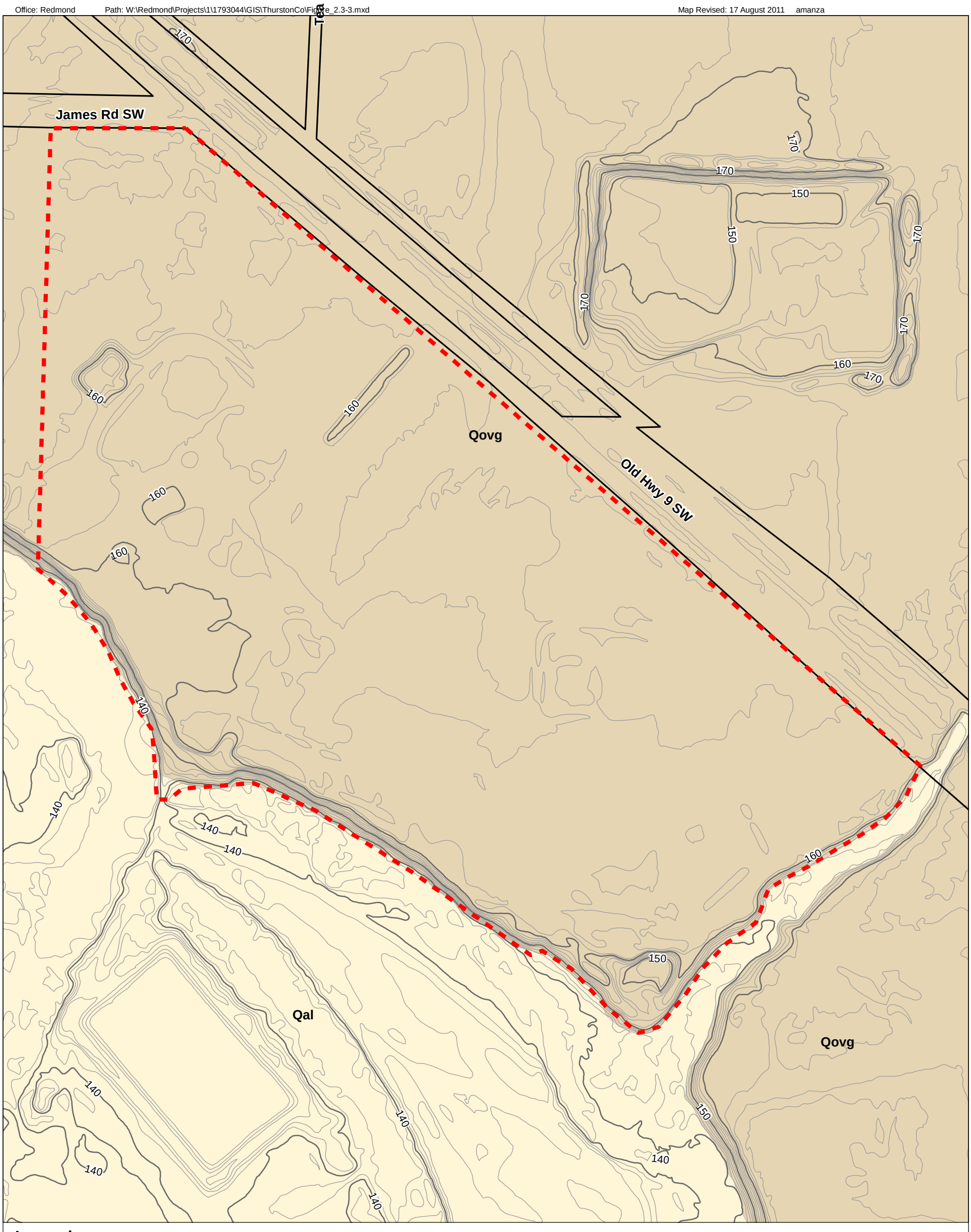
Topography and Slope Map
Thurston County Site

Draft EIS
Department of Corrections
Westside Reception Center

GeoEngineers

Figure 2.3-2

Office: Redmond Path: W:\Redmond\Projects\1\1793044\GIS\ThurstonCo\Figure_2.3-3.mxd Map Revised: 17 August 2011 amanza



Legend

- 2 Foot Contour Line
- 10 Foot Contour Line
- Site Boundary

Geologic Unit

- Alluvium (Qal)
- Vashon Recessional Outwash Gravel (Qovg)

N W E S

300 0 300
Feet

Data Source: Contours and topography generated from LiDAR provided by the Puget Sound LiDAR Consortium (2002). Geology based on geologic map by Polenz, et al (2009).

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

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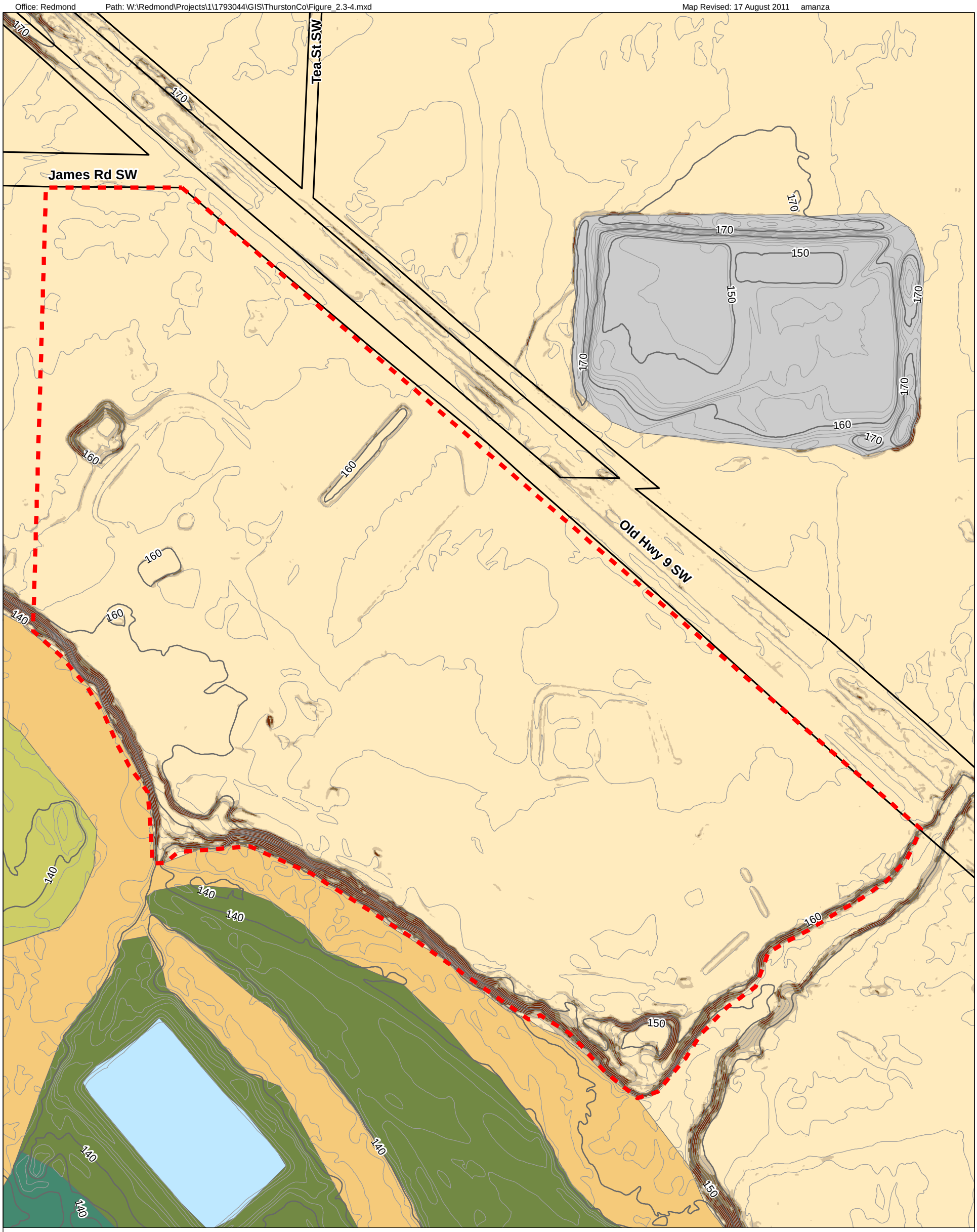
Geologic Map
Thurston County Site

Draft EIS
Department of Corrections
Westside Reception Center

GeoEngineers

Figure 2.3-3

Office: Redmond Path: W:\Redmond\Projects\1\1793044\GIS\ThurstonCo\Figure_2.3-4.mxd Map Revised: 17 August 2011 amanza



Legend

- 2 Foot Contour Line
- 10 Foot Contour Line
- Site Boundary

Spanaway Gravelly Sandy Loam Units

- 0 - 15 percent slopes
- 15 - 30 percent slopes
- 30 - 40 percent slopes
- >40 percent slopes

Other Soil Units

- Chehalis Silt Loam
- Godfrey Silty Clay Loam
- Gravel Pit
- Newberg Fine Sandy Loam
- Newberg Loam
- Water

N W E S

300 0 300
Feet

Data Source: Contours and topography generated from LiDAR provided by the Puget Sound LiDAR Consortium (2002).
Soil units provided by Pringle (1990) and amended by GeoEngineers based on topographic information and site reconnaissance.

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

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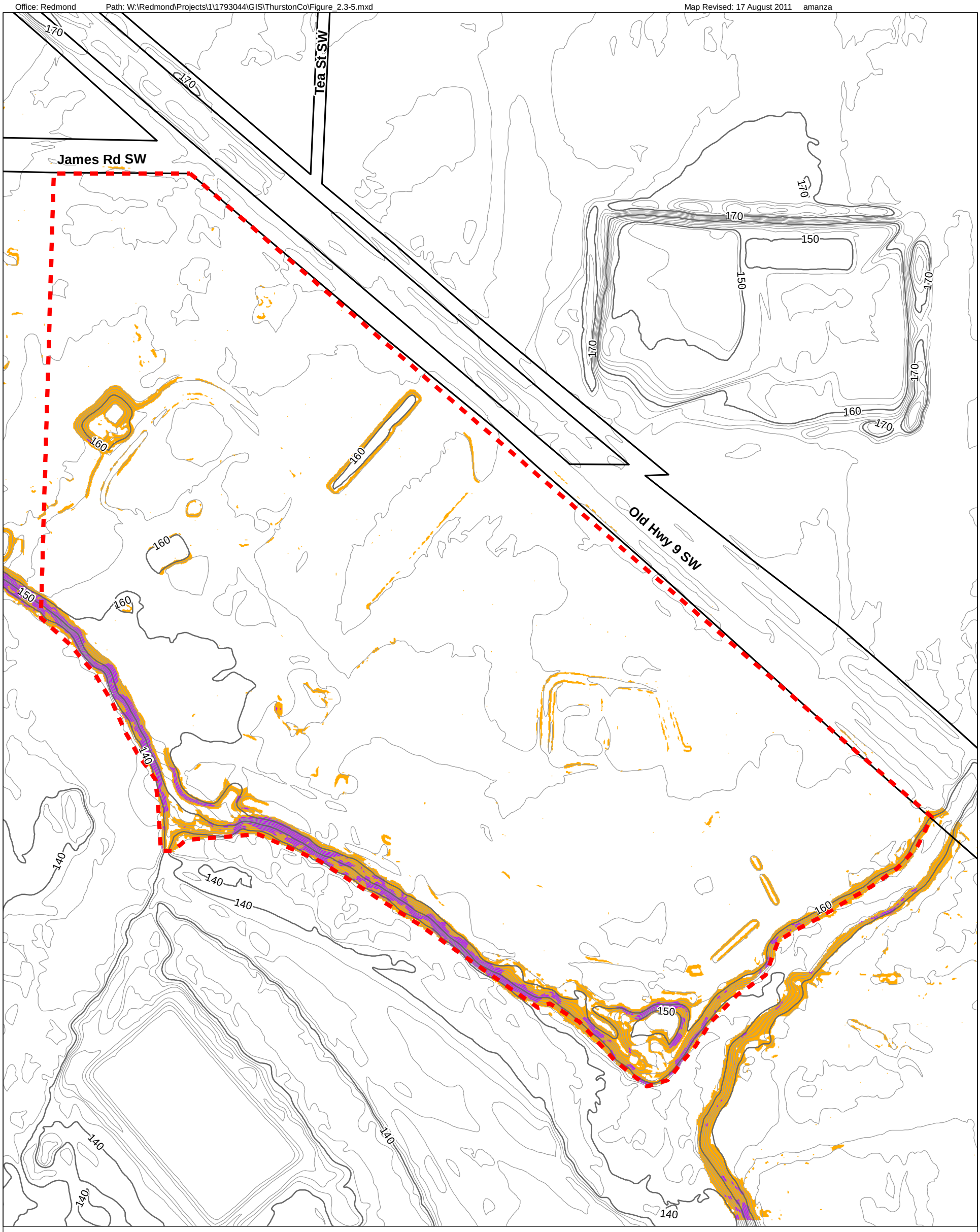
Soils Map
Thurston County Site

Draft EIS
Department of Corrections
Westside Reception Center

GeoEngineers

Figure 2.3-4

Office: Redmond Path: W:\Redmond\Projects\1\1793044\GIS\ThurstonCo\Figure_2.3-5.mxd Map Revised: 17 August 2011 amanza



Legend

- 2 Foot Contour Line
- 10 Foot Contour Line
- Site Boundary

Geologic Hazard Areas

- Erosion Hazard
- Landslide, Steep Slope, Seismic, and Erosion Hazard

N W E S

300 0 300

Feet

Data Source: Contours and topography generated from LiDAR provided by the Puget Sound LiDAR Consortium (2002). Geologic Hazard Areas based on Pringle (1990) and topography.

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Notes:
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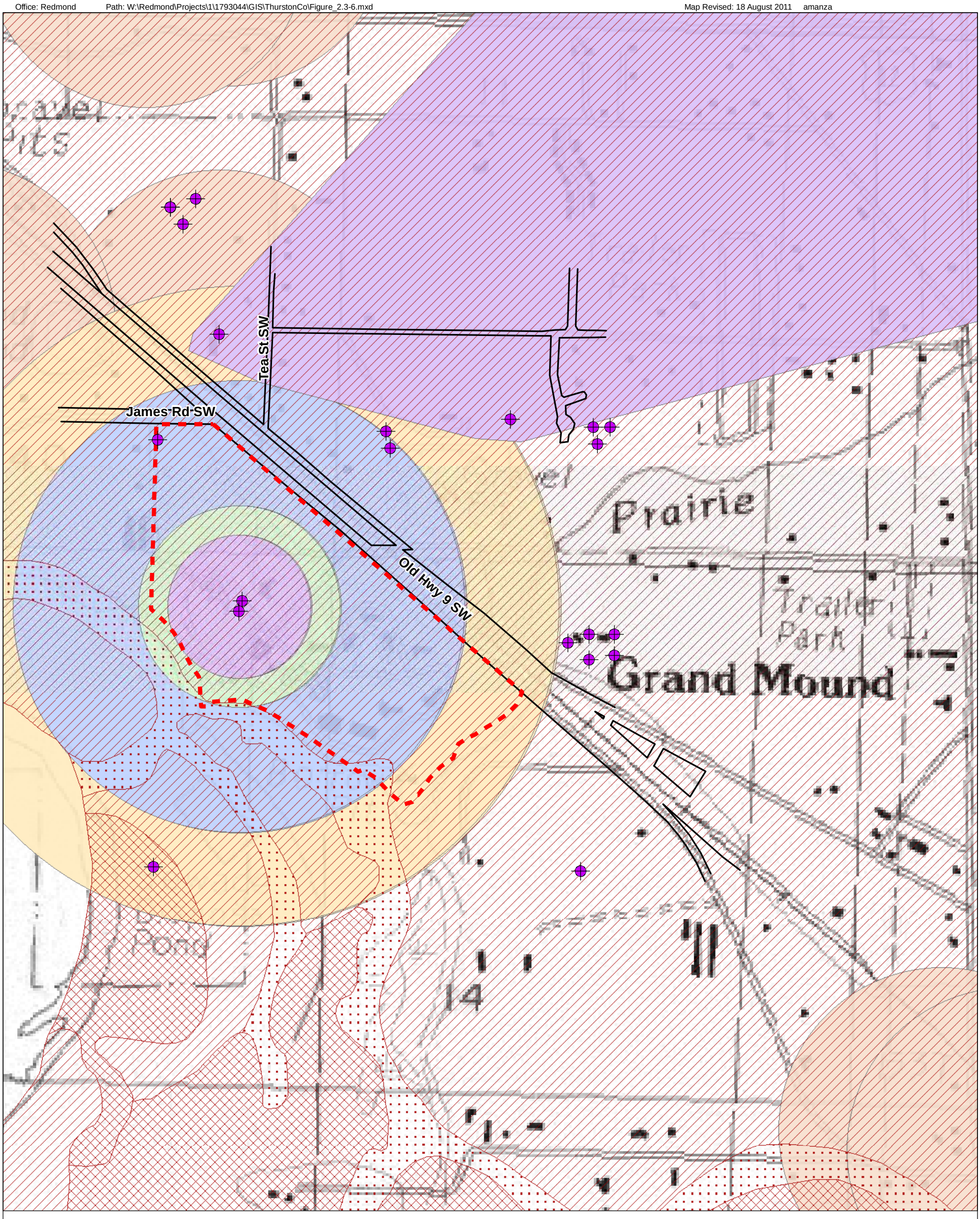
Geologic Hazard Areas Map
Thurston County Site

Draft EIS
Department of Corrections
Westside Reception Center

GeoEngineers

Figure 2.3-5

Office: Redmond Path: W:\Redmond\Projects\1\1793044\GIS\ThurstonCo\Figure_2.3-6.mxd Map Revised: 18 August 2011 amanza



Legend

- Well
- Site Boundary
- Class I Critical Aquifer Recharge Area
- Class II Critical Aquifer Recharge Area
- Class III Critical Aquifer Recharge Area
- Wellhead Protection Zone (6 month)
- Wellhead Protection Zone (1 year)
- Wellhead Protection Zone (5 year)
- Wellhead Protection Zone (10 year)
- Wellhead Protection Zone (unspecified duration)

N W E S

600 0 600

Feet

Data Source: Contours and topography generated from LiDAR provided by the Puget Sound LiDAR Consortium (2002).
Well data from WA State Department of Ecology well log database (2011). WHP data from WA State Department of Health (2011).

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

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Critical Aquifer Recharge Areas Map
Thurston County Site

Draft EIS
Department of Corrections
Westside Reception Center

GeoEngineers

Figure 2.3-6

APPENDIX A
Report Limitations and Guidelines for Use

APPENDIX A
REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This appendix provides information to help you manage your risks with respect to the use of this report.

Report Use and Reliance

This report has been prepared for the Washington State Department of Corrections, Integrus Architecture, EA|Blumen, their authorized agents and regulatory agencies. GeoEngineers structures our services to meet the specific needs of our clients. No party other than the Washington State Department of Corrections, Integrus Architecture, EA|Blumen, their authorized agents and regulatory agencies may rely on the product of our services unless we agree to such reliance in advance and in writing. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and generally accepted geotechnical practices in this area at the time this report was prepared. Use of this report is not recommended for any purpose or project except the one originally contemplated.

This report should not be applied for any purpose or project except the one originally contemplated. If important changes are made to the project or property(s) after the date of this report, we recommend that GeoEngineers be given the opportunity to review our interpretations and recommendations, and then we can provide written modifications or confirmation, as appropriate.

Information Provided by Others

GeoEngineers has relied upon certain data or information provided or compiled by others in the performance of our services. Although we used sources that are believed to be trustworthy, GeoEngineers cannot warrant or guarantee the accuracy or completeness of information provided or compiled by others.

Conditions Can Change

This report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by events such as construction on or adjacent to the site, or by natural events such as floods,

[1] Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

earthquakes, slope instability or groundwater fluctuations. If more than a few months have passed since issuance of our report or work product, or if any of the described events may have occurred, please contact GeoEngineers before applying this report for its intended purpose so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

Professional Judgment

It is important to recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are less exact than other engineering and natural science disciplines. By necessity, GeoEngineers uses its professional judgment in arriving at our conclusions and recommendations. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce the risk of misunderstandings regarding the inexact nature of our professional services. Please confer with GeoEngineers if you need to know how these "Report Limitations and Guidelines for Use" apply to your project or site.

APPENDIX C

Plants and Animals Technical Report

Plant and Animal Technical Report

PREPARED FOR:

Integrus Architecture
117 South Main Street, Suite 100
Seattle, WA 98104

PROJECT:

DOC Westside Reception Center
AHBL No. 210533.10

PREPARED BY:

Theresa R. Dusek
Natural Resources Ecologist
Project Manager

DATE:

September 2011

Table of Contents

Appendices

List of Figures

List of Appendices

SECTION 1. INTRODUCTION

AHBL, Inc. has completed wetland delineation and fish and wildlife habitat review on the Bremerton, Mason County, and Thurston County sites (Figure 1-1) to support the plants and animals sections of the Environmental Impact Statement (EIS) for the Department of Corrections Westside Reception Center. This report has been prepared to define the approximate location of wetlands, streams, and fish and wildlife habitat on and within 500 feet of the project sites and for offsite improvements.

1.1 BREMERTON SITE

The proposed project site is comprised of undeveloped forested property with dirt roads. The overall property is 600 acres in size, with approximately 100 acres as the project site. The site is located southeast of SR 3 and northeast of Southwest Lake Flora Road, Bremerton, Washington (Section 22, Township 23 North, Range 01 West, W.M.) (Figure 1-2). Twelve wetlands and one stream are located on the project site. North of the site are undeveloped land, wetlands, and the Bremerton Airport; south is Lake Flora Road; east are undeveloped land, a seasonal stream, and wetlands; and west is SR 3.

1.2 MASON COUNTY SITE

The proposed project site is comprised of undeveloped forested property with dirt roads on a portion of Parcel 420030000000. The site is located southwest of the intersection of SR 102 (West Dayton Airport Road) and Eells Hill Road, Mason County, Washington (Sections 9 and 10, Township 20 North, Range 04 West, W.M.) (Figure 1-3). The overall property is 497 acres in size, with approximately 50 acres as the project site. A Category I wetland is located on the site and extends offsite along the west site boundary. The onsite portion of this wetland is 1.9 acres. North of the site is SR 102; south is undeveloped forested land; west is wetland, the North Fork of Goldsborough Creek, and the Washington Corrections Center; and east are forested land and a junk yard (Figure 1-3).

1.3 THURSTON COUNTY SITE

The Thurston County site is located at 20311 Old Highway 9 SW, Thurston County, Washington (Sections 11 and 14, Township 15 North, Range 03 West, W.M.). The proposed project site is comprised of the Maple Lane Youth Detention Facility. The overall property is 209 acres in size, with approximately 55 acres inside the existing fenced facility as the project site (Figure 1-4). The project area includes several residential units, school, swimming pools, vocational education building, kitchen, dining hall, steam plant, other service buildings' parking areas, fencing, and a perimeter road and fence. Many of these facilities would be demolished to accommodate the proposed project. Prairie Creek and associated wetlands are located south and west of the project site, but on the overall site. The Chehalis River is located in the southwest corner of the project parcel, but was not included in this review because it is greater than 500 feet from the project site. North of the site is James Road SW, east is Old Highway 9 SW; west of the northern portion of the site is a dairy farm; and south and west of the site is Prairie Creek, associated wetlands, and oak habitat (Figure 1-4).

SECTION 2. EXISTING CONDITIONS

2.1 BREMERTON SITE

In February, June, July, and August of 2011, an AHBL Ecologist visited site to determine the absence, presence, and approximate location of protected plants, animals, or habitats including wetlands, streams, and fish and wildlife conservation areas on and near the project site. If wetlands were identified on or adjacent to a site, wetland boundary flags were placed to identify the location of the wetland. The wetland boundary flags that were set are pink ribbon with "Wetland Delineation" stamped on the flags. The flags were marked with sequential numbers and wetland identifiers (W-A1 indicates wetland boundary flag 1 of Wetland A). The sampling point locations were marked with black and orange ribbon flag tied onto vegetation and marked with a numeric identifier (DP-1 indicates Data Point 1). The approximate size and rating of the wetland were also determined using the Bremerton Code. The site visit included visual observation of the project site and, where possible, the surrounding area within 500 feet of the proposed project site. A review of the offsite improvement area for utility extension included the SR 3 right-of-way from Lake Flora Road to the proposed Membrane Bio-Reactor (MBR) facility location approximately 1.3 miles north of Lake Flora Road and 1,000 feet west of SR 3.

Onsite, twelve wetlands and one stream were flagged and surveyed by AHBL (Appendix A). Offsite, seven wetlands and one stream were identified east of the project site. Three streams were identified near the offsite utility corridor and the proposed MBR facility.

2.1.1 Document Review

According to aerial photographs and GIS topography maps, the site contains a north-south trending ridge that slopes down to the northwest and southeast. Southeast of the ridge is a ravine that contains a stream and associated wetlands.

The U.S. Fish and Wildlife Service National Wetland Inventory (NWI) Map of the Bremerton area does not identify wetland on or within 500 feet of the site.

The *Soil Survey of Kitsap County Area, Washington*, as depicted by the Web Soil Survey, was reviewed to determine the general nature of soils on and near the subject site. The site was determined to contain Alderwood gravelly sandy loam soils. The Alderwood series is made up of moderately well drained soils that formed under conifers in glacial deposits. Permeability of this soil is moderately rapid in the surface layer and subsoil, and very slow in the substratum. The Alderwood soil series is not listed as hydric (wetland) soil by the Natural Resources Conservation Service (NRCS) (1995); however, Alderwood soils may contain hydric soil inclusions.

The Washington State Department of Fish and Wildlife (WDFW) SalmonScape Version 4 Map does not identify streams on or within 500 feet of the site. The site is located in the Kitsap Basin of Water Resource Inventory Area (WRIA) 15.

According to the Washington State DNR, Natural Heritage Information System website, updated November 5, 2010, no rare plants or high quality ecosystems are located in the specific township range and sections of the proposed project (Section 22, Township 23 North, Range 01 West, W.M.).

The Priority Habitat and Species Database information dated June 13, 2011 indicates that (a) Lider Lake is located approximately 600 feet northwest of the site across SR 3, (b) a wetland and tributary to the North East Fork Union River is located approximately 1,300 feet northwest of the site, and (c) a wetland complex is located 300 feet south of the site across Lake Flora Road.

The Bremerton Critical Areas Map does not show wetlands, hydric soils, DNR streams or water bodies, or habitat protection zones on the site. The site is identified as being located in the Union River watershed. The nearest critical areas are wetland located northeast of the site, and Lider Lake, a Class One Habitat Protection Zone and wetland located approximately 1,000 feet west of the site across SR 3.

Adolfson Associates, Inc. completed a Wetland Reconnaissance Report dated September 16, 2005, that included the subject property. The report identified two small wetlands near the south property boundary, and a wetland and stream corridor near the southeast corner of the site along Lake Flora Road. The Adolfson study was a reconnaissance and did not include identification of all wetlands on the site or flagging and surveying wetlands and streams on the site. The report also identified that no threatened or endangered species or habitats were identified on the site.

2.1.2 Plants

Overall, the proposed project site is dominated by second and third growth forest dominated by Douglas fir *(Pseudotsuga menziesii*) with scattered red alder *(Alnus rubra)*. The understory is dominated by salal *(Gaultheria shallon)*, sword fern *(Polystichum munitum)*, and evergreen huckleberry *(Vaccinium ovatum)*. Pockets of the site are not forested and are dominated by scattered young pine trees less than 10 feet in height, salal, evergreen huckleberry, and Scot's broom *(Cytisus scoparius)*. Onsite Wetlands A, B, J, K, L, M, N, O, P, Q, R, and S are dominated by red alder, willow *(Salix spp.)*, Douglas spiraea *(Spiraea douglasii)*, and lady fern *(Athyrium felix-femina)*, as are offsite Wetlands C through I (Appendix A). The riparian corridor associated with the onsite Type Ns stream and offsite Type Ns stream is dominated by red alder, willow, and salal and is a Type Ns stream (seasonal and non-fish bearing) with Bremerton code required buffers of 35 feet (Figure 2-1, and Appendix A).

The proposed offsite utility corridor along SR 3 is within the road prism and includes paved road and gravel shoulders. The SR 3 right-of-way within the proposed utility corridor crosses a tributary to the North East Fork Union River a Type Ns stream with a Bremerton code required 35 foot buffer. The proposed MBR facility is dominated by forest similar to the project site and is proposed outside of the Bremerton code-required 35-foot buffers of two Type Ns streams located south of the facility.

Based on the use of the triple-parameter approach, defined within the 1997 Washington State Wetlands Identification and Delineation Manual and the 1987 Corp of Engineers Wetlands Delineation Manual and Western Mountains, Valleys and Coast Region Supplement to the Corps Manual, twelve wetlands were flagged and surveyed on the site by AHBL. In addition, five offsite wetlands and one stream were flagged but not surveyed within 500 feet of the east project site boundary (Appendix A). Buffers from the offsite wetlands do not extend into the proposed project site. Wetland boundaries are the same using the supplement and the 1997 manual. Wetland Delineation Data forms and Wetland Rating forms are located in

Appendices B and C, respectively. The data forms provide information regarding dominant vegetation, soils, and hydrologic conditions of each wetland. Information regarding each of the onsite and offsite wetlands is provided in Table 2.1-1.

Table 2.1-1
WETLAND SUMMARY FOR THE BREMERTON PROJECT AREA

Wetland Identifier	Location	Category	Hydrogeomorphic Classification	Cowardin Classification	Bremerton Buffer
A	Onsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet
B	Onsite	III	Depressional	Palustrine forested, scrub-shrub	75 feet
J	Onsite	III	Depressional	Palustrine scrub-shrub	75 feet
K	Onsite	III	Depressional	Palustrine emergent	75 feet
L	Onsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet
M	Onsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet
N	Onsite	III	Depressional	Palustrine forested, scrub-shrub, emergent	75 feet
O	Onsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet
P	Onsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet
Q	Onsite	III	Depressional	Palustrine forested, scrub-shrub, emergent	75 feet
R	Onsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet
S	Onsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet
C	Offsite	III	Riverine	Palustrine scrub-shrub, emergent	75 feet
D	Offsite	III	Riverine	Palustrine scrub-shrub, emergent	75 feet
E	Offsite	III	Riverine	Palustrine scrub-shrub, emergent	75 feet
F	Offsite	II	Depressional	Palustrine scrub-shrub, emergent	100 feet
G	Offsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet
H and I	Offsite	III	Depressional	Palustrine scrub-shrub, emergent	75 feet

Source: AHBL Field Work, 2011.

Plant species listed federally or by the state as threatened, endangered, or sensitive have not been observed on or adjacent to the site.

2.1.3 Animals

The Bremerton site is within the Pacific flyway for migratory birds. Migratory birds may pass through the site while traveling between breeding areas to the north and wintering areas to the south, or they may winter or breed at the site. The U.S. Fish and Wildlife Service and Washington Department of Fish and Wildlife cooperatively manage migratory birds through the protection of wetlands and shoreline environments, as well as harvest management of game species.

Birds observed visually and audibly on the project site during the field visit included killdeer *(Charadrius vociferus)*, chickadees *(Poecile atricapilla)*, nuthatch *(Sitta canadensis)*, robin *(Turdus migratorius)*, crow *(Corvus brachyrhynchos)*, and sparrow *(Spizella sp.)*. Garter snake *(Thamnophis sp.)* and Douglas' squirrel *(Tamiasciurus douglasii)* were observed on the site. Deer and rabbit scat were also observed on the site. The seasonal onsite stream and offsite stream are not fish bearing and flow into wetlands south of the site beyond Lake Flora Road.

Protected species that have potential to be located in the immediate vicinity of the project location, and could possibly be affected by direct or indirect impacts associated with the project, are listed in Table 2.1-2.

Table 2.1-2
PROTECTED WILDLIFE SPECIES AND IMPORTANT SPECIES OF KITSAP COUNTY POTENTIALLY LOCATED IN THE VICINITY OF THE PROJECT AREA

Common Name	Scientific Name	Federal Status	State Status	Detected at Bremerton Site
Bald Eagle	Haliaeetus leucocephalus	Species of Concern	Sensitive	No
Western Toad	Anaxyrus boreas	Species of Concern	Candidate	No
Pacific pond turtle	Actinemys marmorata	Species of Concern	Endangered	No
Peregrine falcon	Falco peregrinus	Species of Concern	Sensitive	No
Pileated woodpecker	Dryocopus pileatus	None	Candidate	No
Purple martin	Progne subis	None	Candidate	No
Yellow billed cuckoo	Coccyzus americanus	Candidate	Candidate	No
Vaux's swift	Chaetura vauxi	None	Candidate	No
Purple martin	Progne subis	None	Candidate	No

Source: U. S. Fish and Wildlife Service, 2011, and Washington Department of Fish and Wildlife, 2011

2.2 MASON COUNTY SITE

In February and July of 2011, an AHBL Ecologist visited the site to determine the absence, presence, and approximate location of protected plants, animals, or habitats including wetland, streams, and fish and wildlife conservation areas on and near the project site. Onsite wetlands at the site were delineated by The Wetland Corps in April of 2011 (Appendix D). The review for

wetlands at this site consisted of confirmation that the wetland boundaries set by The Wetland Corps are accurate, and determined the location of the offsite wetland and stream boundary to the west. The site visit included visual observation of the project site and, where possible, the surrounding area within 500 feet of the site, as well as the SR 102 right-of-way from the site frontage to the State Patrol Academy located east of the site (Figure 1-3).

Protected plants, animals, and their habitats including streams, and fish and wildlife habitat conservation areas were not identified on the project site. A Category I wetland, which is the headwaters to the North Fork of Goldsborough Creek, is located in the northwest portion of the site. Offsite within 500 feet of the site are regulated systems including wetland and the North Fork of Goldsborough Creek (Figure 2-2). The onsite portion of the wetland was flagged and surveyed by others.

2.2.1 Document Review

According to aerial photographs and GIS topography maps, the topography of the project site and surrounding areas has been historically manipulated by construction of SR 102 (West Dayton Airport Road) and logging of the site. Overall, the site slopes down from SR 102 approximately 10 feet. The remainder of the site is relatively flat with a swale located along a portion of the north property line and a high point near the southwest corner.

The U.S. Fish and Wildlife Service NWI Map of the Shelton area does not identify wetland on or near the site.

The *Soil Survey of Mason County Area, Washington*, as depicted by the Web Soil Survey, was reviewed to determine the general nature of soils on and near the subject site. The site was determined to contain Grove gravelly sandy loam soils over most of the site, and Lystair loamy soils in the northeast corner of the site. The Grove series is made up of somewhat excessively drained soils that formed in glacial outwash deposits. This soil is gravelly sandy loam near the surface underlain by very gravely sandy loam underlain by very gravely loamy sand. The Grove soil series is not listed as hydric (wetland) soil by the NRCS. The Lystair series is made up of somewhat excessively drained soils that formed glacial outwash deposits. This soil is loamy sand underlain by sandy loam underlain by sand. The Lystair soil series is not listed as hydric (wetland) soil by the NRCS.

The WDFW SalmonScape Version 4 Map indicates that the North Fork of Goldsborough Creek is located in the northwest corner of the site and offsite along the west property boundary. Downstream of the site, the creek is listed as containing winter steelhead *(Oncorhynchus mykiss)* and Coho salmon *(Oncorhynchus kisutch)*. The site is located in the Kennedy Goldsborough River Basin of WRIA 14.

According to the Washington State Department of Natural Resources, Natural Heritage Information System website, updated November 5, 2010, no rare plants or high quality ecosystems are located in the specific township range and sections of the proposed project (Sections 9 and 10, Township 20 North, Range 04 West, W.M.).

According to the WDFW Priority Habitat and Species Database, the site contains the headwaters to the North Fork of Goldsborough Creek. Within 1 mile of the project area at the Shelton Airport are Shelton Pocket Gopher-Mazama (state Threatened species and federal

Candidate species) and Streaked Horned Lark nest areas (state Endangered species and federal Candidate species).

The Wetland Corps completed wetland delineation on the subject site and the remainder of the subject parcel located south of West Dayton Airport Road. According to the report, the wetland is located in the northwest corner of the site and extends offsite to the west. The wetland is a 1.9-acre Category I system in accordance with the Western Washington Wetland Rating form based on Special Characteristics (SC4 Forested Wetlands). Mason County Code 17.010707 would require a 200-foot buffer for high impact land use, such as the Westside Reception Center, and a 15-foot building setback (Figure 2-2).

The Mason County Map Viewer shows the North Fork of Goldsborough Creek in the northwest corner of the site. The County map does not show wetland on the site. The 1995 aerial photograph layer on the County Map Viewer shows that the site was logged, with the exception of a sloping area near the south site boundary.

2.2.2 Plants

Overall, the site is dominated by young coastal pine *(Pinus contorta)*, Douglas fir, and red alder trees, with an understory dominated by fool's huckleberry *(Menziesia ferruginea)*, salal, Oregon grape *(Mahonia nervosa)*, and evergreen huckleberry. The site was logged in the last 20 years.

The onsite wetland boundaries flags set by The Wetland Corps in April of 2011 were present on the site, reviewed by the AHBL Ecologist and appeared to be accurate. The offsite wetland boundary was not shown on The Wetland Corps map located in the report. The AHBL Ecologist determined the approximate offsite wetland boundary which is shown on Figure 2.2. The wetland is a Category I system with a hydrogeomorphic classification of Depressional/Flats. According to the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al, 1979), the wetland is a Palustrine forested, scrub-shrub, open water, occasionally flooded to seasonally flooded to saturated system. The wetland is dominated by coastal pine, western red cedar *(Thuja plicata)* and red alder, Douglas spiraea, salmonberry *(Rubus spectabilis)*, Scoular's willow *(Salix scouleriana)*, mannagrass *(Glyceris elata)*, and tough-me-not *(Impatience noli-tangere)*. The wetland topography consists of interspersed wetlands with upland hummocks. Water is provided to the wetland by shallow groundwater, and local runoff. The wetland provides water to the downstream North Fork of Goldsborough Creek which starts near the southwest corner of the site where the wetland flows through a culvert. Soils in the wetland are gravelly loam to gravelly clay loam. The wetland generally has high biologic functions due to its size, variety of water depths, presence of large woody debris and snags, high diversity in the plant community, and interspersion of habitats including upland hummocks and adjacent forested buffer. Habitat within the wetland system and adjacent systems provides for a wide range of species that use the habitat including amphibians, birds, and mammals. Snags and downed logs are present. In general, the wetland has high hydrologic functions. The wetland is large, occasionally and seasonally flooded, the headwaters to the offsite creek, and provides water quality treatment, removal of sediments, and flood water retention.

The offsite riparian corridor along the North Fork of Goldsborough Creek is dominated by mowed grasses nearest the site.

Plant species listed federally or by the state as threatened, endangered, or sensitive have not been observed on or adjacent to the site.

2.2.3 Animals

The Mason County site is within the Pacific flyway for migratory birds. Migratory birds may pass through the site while traveling between breeding areas to the north and wintering areas to the south, or they may winter or breed at the site. The U.S. Fish and Wildlife Service and Washington Department of Fish and Wildlife cooperatively manage migratory birds through the protection of wetlands and shoreline environments, as well as harvest management of game species.

Snag habitat was observed in the onsite wetland. Birds observed visually and audibly on the project site during the field visit included killdeer, mourning dove *(Zenaida macroura)*, chickadees, nuthatch, robin, crow, and sparrow. Deer and rabbit scat were also observed on the site. Steelhead and Coho salmon are documented to use North Fork of Goldsborough Creek approximately 1 mile downstream from the site.

Protected species that have potential to be located in the immediate vicinity of the project location, and could possibly be affected by direct or indirect impacts associated with the project, are listed in Table 2.2-1.

Table 2.2-1
PROTECTED WILDLIFE SPECIES AND IMPORTANT SPECIES OF MASON COUNTY POTENTIALLY LOCATED IN THE VICINITY OF THE PROJECT AREA

Common Name	Scientific Name	Federal Status	State Status	Detected at Mason County Site
Bald Eagle	Haliaeetus leucocephalus	Species of Concern	Sensitive	No
Cascade frog	Rana cascadae	Species of Concern	None	No
Mazama pocket gopher	Thomomys mazama (only subspecies couchi)	Candidate	Threatened	No
Northern groshawk	Accipiter gentilis	Species of Concern	Candidate	No
Pacific pond turtle	Actinemys marmorata	Species of Concern	Endangered	No
Peregrine falcon	Falco peregrinus	Species of Concern	Sensitive	No
Pileated woodpecker	Dryocopus pileatus	None	Candidate	No
Purple martin	Progne subis	None	Candidate	No
Streaked Horn Lark	Eremophila alpestris strigata	Candidate	Endangered	No
Van Dyke salamander	Plethodon vandykei	Species of Concern	Species of Concern	No

Common Name	Scientific Name	Federal Status	State Status	Detected at Mason County Site
Pacific pond turtle	Actinemys marmorata	Species of Concern	Endangered	No

Source: U. S. Fish and Wildlife Service, 2011, and Washington Department of Fish and Wildlife, 2011

2.3 THURSTON COUNTY SITE

In February, June, and July of 2011, an AHBL Ecologist visited site to determine the absence, presence and approximate location of protected plants, animals, or habitats including wetlands, streams, and fish and wildlife conservation areas on and near the project site. If wetlands were identified on or adjacent to a site, wetland boundary flags were placed to identify the location of the wetland. The wetland boundary flags that were set are pink ribbon with "Wetland Delineation" stamped on the flags. The flags were marked with sequential numbers and wetland identifiers (W-A1 indicates wetland boundary flag 1 of Wetland A). The sampling point locations were marked with black and orange ribbon flag tied onto vegetation and marked with a numeric identifier (DP-1 indicates Data Point 1). The approximate size and rating of the wetland were also determined using the current Thurston County Code. Thurston County is in the process of updating the critical areas code, and anticipates completion and updating of the code in 2012. The site visit included visual observation of the project site and, where possible, the surrounding area within 500 feet of the fenced portion of the site, as well as the Old Highway 9 right-of-way from the frontage of the site to Old Highway 99.

Protected animals and their habitats including wetlands, streams, and fish and wildlife habitat conservation areas were not identified on the project site within the fenced area. Four Oregon White Oak trees (a protected plant species) are located on the project site. Oregon White Oak stands are considered a priority habitat by WDFW because of their importance to several wildlife species, including the western gray squirrel. Within 500 feet of the project site are regulated systems including two wetlands, Prairie Creek, and Oregon White Oak Woodlands (Figure 2-3). Wetlands and the Prairie Creek ordinary high water mark nearest the site were delineated, flagged, and surveyed.

2.3.1 Document Review

According to aerial photographs and GIS topography maps, the project site and surrounding areas have been historically manipulated by construction of the Maple Lane Detention Facility and roads. Overall, the site is relatively flat. South of the project area slopes down approximately 15 feet to Prairie Creek, and the west area adjacent to the site slopes down approximately 20 to 25 feet to Prairie Creek.

The U.S. Fish and Wildlife Service NWI Map of the project identifies Palustrine forested and unconsolidated bottom wetlands near the project site.

The *Soil Survey of Thurston County Area, Washington*, as depicted by the Web Soil Survey, was reviewed to determine the general nature of soils on and near the subject site. The site was determined to contain Spanaway gravelly sandy loam soils (a prairie soil) over the project site, and Godfrey silty clay loam soils adjacent to the project site. The Spanaway series is made up of somewhat excessively drained soils that formed in glacial outwash deposits mixed

in the upper part with volcanic ash. This soil is gravelly sandy loam near the surface underlain by sandy loam underlain by very gravely sandy loam. The Spanaway soil series is not listed as hydric (wetland) soil by the NRCS. The Godfrey series is made up of poorly drained soils that formed in alluvium on floodplains. This soil is silty clay loam underlain by silty clay. The Godfrey soil series is listed as hydric (wetland) soil by the NRCS.

The WDFW SalmonScape Version 4 Map indicates that Prairie Creek is located south and west of site. Prairie Creek is not shown on SalmonScape as containing salmon species, likely due to a fish barrier identified northwest of the site, although the Chehalis River to which Prairie Creek drains is listed as containing fall and spring Chinook, winter steelhead, and Coho salmon. The site is located in the Chehalis River Basin of WRIA 23.

According to the Washington State DNR, Natural Heritage Information System website, updated November 5, 2010, Section 11, T15N, R3W contains rare plants or a high quality ecosystem. Per a request to the Natural Heritage database manager, it was determined that the documented feature is not located on the site, but rather is located in the riparian corridor of Prairie Creek upstream from the overall site.

According to the WDFW database, the project area does not contain priority habitats and species. The surrounding area on the overall site contains Prairie Creek, the Chehalis River, wetlands associated with the creek and river, and oak stands. Prairie Creek is listed by the WDFW as containing resident cutthroat trout *(Oncorhynchus clarki)*.

The Thurston County Geodata Map does not identify wetland or streams on the project site. The overall site outside of the project area is shown as containing Prairie Creek, the Chehalis River, and wetlands. The Thurston County Prairie Grasslands and Oak Habitat Map identifies the project site as containing Prairie Soils and the overall site as containing Prairie Soils and oak habitat near Prairie Creek.

2.3.2 Plants

Oregon White Oak woodlands are located off of the project site, with four oak trees located on the project site behind the existing fence and perimeter road (Figure 2-3). Oregon White Oak woodlands are a protected habitat as defined by the WDFW and Thurston County.

Overall, the site is dominated by mowed lawn, maple trees along many of the roads, a Douglas fir forest in the northern portion of the site with a grassy understory and scattered Indian plum *(Oemleria cerasiformis)*, and red elderberry *(Sambucus racemosa)*, scattered mature Douglas fir, fruit trees, and landscape trees, four Oregon White Oak trees, landscaped planning beds and an abandoned vegetable garden. Threatened or endangered plant species were not identified on the site. The four Oregon White Oak trees are the only protected species located on the site.

Offsite is a 5- to 10-foot wide grassy strip along the existing fence line. On the overall site, beyond the existing chain link fence and perimeter road, are oak woodlands, two wetlands, and a riparian corridor associated with Prairie Creek, which are regulated systems as defined by Washington State and Thurston County (Figure 2-3). The oak woodlands are dominated by Oregon White Oak trees, with Oregon ash *(Fraxinus latifolia)*, big leaf maple *(Acer macrophyllum)*, and Douglas fir trees scattered among the oaks. The understory below the

oaks is dominated by hawthorn *(Crategus douglasii)*, snowberry *(Symphoricarpos albus)*, Indian plum, elderberry, vine maple *(Acer circinatum)*, sword fern, hazelnut *(Corylus cornuta)*, and oceanspray *(Holodiscus discolor)*. Upstream of the site, a protected plant species, small flower trillium *(Trillium parviflorum*), has been documented. A walking review of the project site and overall site habitat in early July 2011 resulted in no detection of small flower trillium.

The offsite riparian corridor along Prairie Creek was dominated by Oregon Ash *(Fraxinus latifolia)*, big leaf maple, and Douglas fir, with a scattering of western red cedar, black cottonwood *(Populus balsamifera)*, and red alder. The understory was dominated by Himalayan blackberry *(Rubus discolor)*, snowberry, thimbleberry *(Rubus parviflorus)*, trailing blackberry *(Rubus ursinus)*, salmonberry, Indian plum, red elderberry, vine maple, hazelnut, oceanspray, and sword fern.

Based on the use of the triple-parameter approach, defined within the 1997 Washington State Wetlands Identification and Delineation Manual, and 1987 Corp of Engineers Wetlands Delineation Manual and Western Mountains, Valleys and Coast Region Supplement to the Corps Manual, two wetlands located off of the project site were flagged and surveyed by AHBL. Wetland boundaries are the same using the supplement and the 1997 manual. Wetland Delineation Data forms and Wetland Rating forms are located in Appendices D and E, respectively.

Wetland A is located along Prairie Creek near Old Highway 9, and Wetland B is located along the southwestern boundary of the project site (Figure 2-3). Wetland determination data forms and rating forms are located in Appendices A and B, respectively. Wetland A is a Category II system with a hydrogeomorphic classification of Riverine. According to the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al, 1979), Wetland A is a Palustrine forested, seasonally flooded system dominated by Oregon ash, red alder *(Rubus spectabilus)* buttercup *(Ranunculus repens)*, salmonberry, and reed canarygrass *(Phalaris arundinacea)*. Seasonal hydrology in the wetland is provided by overbank flooding of Prairie Creek. Soils in Wetland A are gravelly sandy loam. Wetland A generally has moderate biologic functions due to its size, seasonal shallow water, lack of large woody debris and snags, and low diversity in the plant community. Habitat within the wetland system and adjacent buffer, and association with Prairie Creek provides for a wide range of species that use the habitat. Snags and downed logs are not present. Habitat diversity is provided by interspersion of “habitat” types between the wetland, Prairie Creek, and the forested riparian corridor areas adjacent to the wetland. In general, the wetland has moderate hydrologic functions. The wetland is a small, seasonally flooded depression connected to Prairie Creek, and provides water quality treatment, removal of sediments, and flood water retention. The outer 70 feet of the buffer is functionally interrupted by the existing paved perimeter road and twelve foot tall chain link perimeter fence. The buffer beyond the fence and road consists of a soccer field.

Wetland B is a Category I system with a hydrogeomorphic classification of Riverine. According to the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al, 1979), Wetland B is a Palustrine forested, scrub-shrub, emergent, aquatic, open water system dominated by black cottonwood, willow species *(Salix spp.)*, red osier dogwood *(Cornus stolonifera)*, skunk cabbage *(Lysichiton americanum)*, sedges *(Carex spp.)*, water parsley *(Oenantha sarmentosa)*, buttercup *(Ranunculus repens)*, lily pads *(Nuphar plysepalum)*, Mannagrass, and American brooklime *(Veronica beccabunga)*. Wetland B is a permanently to seasonally flooded system that is an old oxbow of the Chehalis River and the lower portion of Prairie Creek, with areas of ponded water up to 3 or 4 feet deep. Water is provided to Wetland

B by groundwater, surface water discharge from Prairie Creek, and seasonal overbank flooding of the Chehalis River. Water in Wetland B flows from the south to the north, and ultimately enters the Chehalis River. Soils in Wetland B are silt loam to silty clay loam to muck. Wetland B generally has high biologic functions due to its size, variety of water depths, presence of large woody debris and snags, high diversity in the plant community, and interspersion of habitats including Prairie Creek, the Chehalis River, farm fields, and channels associated with the farm fields and adjacent forest. Habitat within the wetland system and adjacent systems provides for a wide range of species that use the habitat including fish, amphibians, birds, and mammals. Snags and downed logs are present. In general, the wetland has high hydrologic functions. The wetland is large, is permanently and seasonally flooded, and is connected to the Chehalis River and Prairie Creek, and provides water quality treatment, removal of sediments, and flood water retention. The outer 240 to 250 feet of the Wetland B buffer is functionally interrupted by the existing paved perimeter road and twelve foot tall chain link perimeter fence. The buffer beyond the fence and road consists of existing buildings, utilities and sidewalks proposed to remain on the site.

Plant species listed federally or by the state as threatened, endangered, or sensitive have not been observed on or adjacent to the site.

2.3.3 Animals

The site is mapped by the WDFW as "soils known to be inhabited by pocket gophers," meaning that the site contains either prairie loam soils or sand soils that have the potential to be used by pocket gophers. Mazama pocket gophers are listed as a Threatened species by the WDFW and as a Candidate species by the U.S. Department of Fish and Wildlife. Observation by Theresa Dusek (a qualified biologist trained by WDFW) during site visits in June of 2011 did not identify pocket gopher mounds on the site or within the Old Highway 9 right-of-way between the frontage of the site and Old Highway 99. On July 5, 2011, Tammy Schmidt of WDFW visited the site with Ms. Dusek and confirmed no detection of Mazama pocket gopher mounds.

The Thurston County Site is within the Pacific flyway for migratory birds. Migratory birds may pass through the site while traveling between breeding areas to the north and wintering areas to the south, or they may winter or breed at the site. The U.S. Fish and Wildlife Service and Washington Department of Fish and Wildlife cooperatively manage migratory birds through the protection of wetlands and shoreline environments, as well as harvest management of game species.

The project site is fully enclosed by a 12-foot tall chain link fence, which limits use of the site by wildlife to species that are very small or species that fly and burrow. Nest and snag habitat was not observed on the site. Birds observed visually and audibly on the project site during the field visit included mourning dove, chickadees, nuthatch, robin, crow, and sparrow. Offsite the nearest bald eagle nest is approximately one mile west of the site. Resident cutthroat trout are documented to use Prairie Creek.

Protected species that have potential to be located in the immediate vicinity of the project location, and could possibly be affected by direct or indirect impacts associated with the project, are listed in Table 2.3-1.

Table 2.3-1
PROTECTED WILDLIFE SPECIES AND IMPORTANT SPECIES OF THURSTON COUNTY POTENTIALLY LOCATED IN THE VICINITY OF THE PROJECT AREA

Common Name	Scientific Name	Federal Status	State Status	Detected at Thurston County Site
Bald Eagle	Haliaeetus leucocephalus	Species of Concern	Sensitive	Yes, but not in regulated distance
Band-tailed pigeon	Columba fasciata	None	None	No
Cavity-nesting ducks (includes Wood Duck, Bufflehead, Common and Hooded Mergansers, Barrow's Goldeneye)		None	None	No
Great blue heron	Ardea herodias	None	None	No
Mazama pocket gopher	Thomomys mazama (only subspecies couchi, glacialis, louiei, tumuli, and melanops; or Shelton, Roy Prairie, Cathlamet, Tenino, and Olympic pocket gophers, respectively)	Candidate	Threatened	No
Mardon skipper*	Polites mardon	Candidate	Endangered	No
Mountain quail*	Oreortyx pictus			
Olympic mudminnow	Novumbra hubbsi	None	None	No
Osprey	Pandion haliaetus			No
Peregrine falcon	Falco peregrinus	Species of Concern	Sensitive	No
Pileated woodpecker	Dryocopus pileatus	None	Candidate	No
Purple martin	Progne subis	None	Candidate	No
Red-tailed hawk*	Buteo jamaicensis	None	None	No
Spotted frog	Rana pretiosa	None	Candidate	No
Western bluebird	Sialia mexicana	None	None	No
Western Gray Squirrel**	Sciurus griseus	Species of Concern	Threatened	No
Pacific pond turtle	Actinemys marmorata	Species of Concern	Endangered	No
Taylor's checkerspot*	Euphydryas editha taylori	Candidate	Endangered	No

Source: Thurston County Code Chapter 17.15, 1994, U. S. Fish and Wildlife Service, 2011, and Washington Department of Fish and Wildlife, 2011

** Implementation by Thurston County deferred until management recommendations are prepared for this species.*

*** Implementation by Thurston County deferred within all urban growth areas.*

SECTION 3. IMPACT OF ALTERNATIVES

3.1 BREMERTON SITE

The Endangered Species Act prohibits projects that impact species of fish or wildlife that are in danger of extinction, or that endanger the designated critical habitat of these species. The Migratory Bird Treaty Act makes it illegal to "take" migratory birds or their eggs, feathers, or nests. The Bald Eagle Protection Act of 1940 prohibits the taking, possession, or commerce of both bald and golden eagles. Bald eagles were delisted under the Endangered Species Act in 2007, but are still protected under the federal Bald Eagle Protection Act, the Migratory Bird Treaty Act, and the Washington State Bald Eagle Protection Act (RCW 77.12.655). The WDFW identifies Priority Habitats and Species that warrant additional protection or special management.

3.1.1 Plant Community Potential Impacts

The proposed project and offsite improvements include grading of the site and would remove existing second and third growth forest and understory vegetation, as well as wetland vegetation. Construction of the facility will unavoidably impact 45,289 square feet of Category III wetland including Wetlands J, K, L, M, N, O, P, R, and S**.** Mitigation for impacts to the wetlands would meet federal, state and local regulations and provide for wetland mitigation at a 2:1 ratio, requiring a 90,578-square foot wetland mitigation project. The mitigation area proposed on the site is near Wetlands A and B (Figure 3.1).

Operation of the facility after construction will not directly impact remaining wetlands or associated buffers, or streams or associated buffers located on or near the site. No federally listed or state listed threatened, endangered, sensitive, or priority species were identified on or near the site.

3.1.2 Wildlife Potential Impacts

Grading, construction, impervious surfaces, and increased human activity may result on short- and long-term disturbance to general wildlife in the vicinity of the site and offsite utility extensions. Short-term impacts would include, but are not limited to, increased noise levels and bright lights. Development proposes direct and indirect water quality impacts to sensitive areas, primarily the result of increased impervious surfaces and potential stormwater runoff during construction and after construction that could raise water temperatures, increase turbidity, decrease dissolved oxygen, produce extreme flow fluctuations, and other impacts. Development design can minimize impacts through stormwater treatment, storage, and discharge at predevelopment rates. The minimization of impacts and mitigation of unavoidable impacts to wetland and wetland buffers are other measures that can assist in alleviating impacts of development.

During construction, water quality is predominantly threatened by erosion and sedimentation to wetlands and streams from stormwater runoff, causing increased turbidity and overall degradation of the aquatic ecosystem. Suspended solids in turbid waters can contribute to elevated temperature and the reduction of dissolved oxygen in the water column.

Post construction runoff is proposed to be treated and infiltrated outside of the remaining wetlands, streams, and associated buffer at predevelopment rates, and therefore will not impact surface waters. Light from developments can disturb nocturnal animal species. Lighting will include cut-off luminaries to reduce light spillage to wetland and stream areas.

The total area reduction of wildlife habitat may be the result of development. However, protected species are not proposed to be impacted during or after construction, and regulated habitats including wetland and stream are proposed to be protected or for unavoidable impacts are proposed to be mitigated.

3.2 MASON COUNTY SITE

The Endangered Species Act prohibits projects that impact species of fish or wildlife that are in danger of extinction, or that endanger the designated critical habitat of these species. The Migratory Bird Treaty Act makes it illegal to "take" migratory birds or their eggs, feathers, or nests. The Bald Eagle Protection Act of 1940 prohibits the taking, possession, or commerce of both bald and golden eagles. Bald eagles were delisted under the Endangered Species Act in 2007, but are still protected under the federal Bald Eagle Protection Act, the Migratory Bird Treaty Act, and the Washington State Bald Eagle Protection Act (RCW 77.12.655). The WDFW identifies Priority Habitats and Species that warrant additional protection or special management.

Construction and operation of the facility after construction will not directly impact wetlands or associated buffers, or streams or associated buffers located on or near the site. No federally listed or state listed threatened, endangered, sensitive, or priority species were identified on or near the site.

3.2.1 Plant Community Potential Impacts

The proposed project includes grading of the site outside of the wetland and associated wetland buffers, and would remove existing forest and understory vegetation that has been logged in the last 20 years. Impacts to wetlands and associated buffers are not proposed during or after construction. This report recognizes the onsite wetland that extends offsite to the west-southwest as a Category I system with a regulated 200-foot buffer for high land use intensities, such as the Westside Reception Center (Figure 3-2).

3.2.2 Wildlife Potential Impacts

Grading, construction, impervious surfaces, and increased human activity may result on short- and long-term disturbance to general wildlife. Short-term impacts would include, but are not limited to, increased noise levels and bright lights. Development proposes direct and indirect water quality impacts to sensitive areas, primarily the result of increased impervious surfaces and potential stormwater runoff during construction and after construction that could raise water temperatures, increase turbidity, decrease dissolved oxygen, produce extreme flow fluctuations, and other impacts. Development design can minimize impacts through stormwater treatment, storage, and infiltration. The preservation of natural areas such as wetland and wetland buffers is another conservation measure that can minimize the impacts of development.

During construction, water quality is predominantly threatened by erosion and sedimentation to onsite wetlands and the offsite wetland and stream from stormwater runoff, causing increased turbidity, damage to downstream fish spawning gravels, and overall degradation of the aquatic ecosystem. Suspended solids in turbid waters can contribute to elevated temperature and the reduction of dissolved oxygen in the water column.

Post construction runoff is proposed to be treated and infiltrated outside of the wetland and 200 foot wetland buffer, and therefore will not impact surface waters. The amount of recharge to the wetlands and Goldsborough Creek are not anticipated to change. Light from developments can disturb nocturnal animal species. Lighting will include cut-off luminaries to reduce light spillage to wetland and stream areas.

The total area reduction of wildlife habitat may be the result of development. However, protected species are not proposed to be impacted during or after construction, and regulated habitats including wetland and stream are proposed to be protected during and after construction. Impacts to fisheries resources downstream of the site during or after construction in Goldsborough Creek are not anticipated.

3.3 THURSTON COUNTY SITE

The Endangered Species Act prohibits projects that impact species of fish or wildlife that are in danger of extinction, or that endanger the designated critical habitat of these species. The Migratory Bird Treaty Act makes it illegal to "take" migratory birds or their eggs, feathers, or nests. The Bald Eagle Protection Act of 1940 prohibits the taking, possession, or commerce of both bald and golden eagles. Bald eagles were delisted under the Endangered Species Act in 2007, but are still protected under the federal Bald Eagle Protection Act, the Migratory Bird Treaty Act, and the Washington State Bald Eagle Protection Act (RCW 77.12.655). The WDFW identifies Priority Habitats and Species that warrant additional protection or special management.

Construction and operation of the proposed project will not directly impact wetlands or associated buffers, or streams or associated buffers located on the overall site. The project may impact the standard wetland buffer located beyond the existing perimeter road and chain link fence for demolition of buildings, and upgrading existing utilities, but proposes to meet Thurston County Code to reduce the standard wetland buffers to functioning wetland buffer widths. Offsite utility extension along Old Highway 9 will include crossing Prairie Creek within the footprint of the existing bridge deck and is not anticipated to have impacts to the Prairie Creek system. No federally listed or state listed threatened, endangered, sensitive, or priority species were identified on the site other than the four Oregon white oak trees, which will not be impacted.

3.3.1 Plant Community Potential Impacts

The proposed project includes grading of the site in the footprint of the Thurston County Site Alternative (Figure 3-3), outside of the offsite wetlands and associated wetland buffers, and would remove 22 mature fir trees and 50 deciduous trees including maple, fruit trees, and landscape trees around existing buildings, mowed lawn, and landscape beds. Impacts to wetlands, stream, and stream buffer are not proposed before or after construction. The four onsite Oregon white oak trees are not proposed to be impacted. Functioning wetland buffer is

not proposed to be impacted. This report recognizes an offsite Category I wetland, Category II wetland and Prairie Creek. Prairie Creek has a Thurston County Code required 100-foot buffer that partially extends onto the site, which is not proposed to be impacted. The Category I offsite wetland has a standard code required 300-foot buffer and the Category II Wetland has a Standard 200-foot buffer that extends onto the site Both wetland buffers contains significant structures within the onsite buffer, including the 12-foot tall perimeter fence, paved 10-foot wide perimeter access road, existing classrooms, gymnasium, bus barn, boiler room, carpentry and paint buildings, commissary, water tank, pump house, paved sidewalks, other accessory buildings and portions of the administration building, maintenance building, Birch Housing Unit, soccer field, garage, laundry, and food services buildings. These structures functionally separate the wetlands from the standard code required buffer.

In accordance with the Thurston County Code 17.15.940:

> *"The review authority may reduce the standard wetland buffer for those areas which are functionally separated from a wetland and do not protect the wetland from adverse impacts due to a pre-existing road, structure or vertical separation. This provision shall not apply to a logging road constructed with or without a forest practices permit, or to any road or structure constructed in violation of this chapter."*

The project anticipates that this section of the code will provide reduction of the wetland buffer as depicted on Figure 3-4 at the edge of the perimeter fence. The reduced wetland buffer is not proposed to be impacted.

The existing sewer pump station and associated vault located in the Wetland B reduced buffer may be modified. It may be possible to alter the pumping rate rather than expand the existing facility. At this time, exact impacts to the wetland buffer are unknown, but it is anticipated that the facility, in the worst case, may need to be doubled in size, and therefore would impact roughly 200 square feet of wetland buffer. If impacts to the wetland buffer by upgrades to the sewer pump station facility occur, mitigation would be provided in accordance with the Thurston County Code.

3.3.2 Wildlife Potential Impacts

Removal of mature trees (22 evergreen and 50 deciduous trees) could impact species that use these trees for roosting, nesting, feeding, or cover. Migratory birds are likely to nest or roost in the trees. Currently, eagle nests are not located in the project area and construction will not occur within approximately 1 mile of known nest trees or within 250 feet of the shoreline where eagles may forage; therefore, impacts would not occur.

Fish species in Prairie Creek or Wetland B would not be impacted by the project because best management practices will be employed to prevent runoff from exposed soils reaching the system's direct runoff during construction. Following construction, runoff from the project area will be infiltrated, reducing the potential for turbid or contaminated water reaching the wetlands and stream through the storm system.

Grading, construction, impervious surfaces, and increased human activity may result on short- and long-term disturbance to general wildlife. Short-term impacts would include, but are not limited to, increased noise levels and bright lights. Development proposes direct and indirect

water quality impacts to sensitive areas, primarily the result of potential stormwater runoff during construction that could raise water temperatures, increase turbidity, decrease dissolved oxygen, produce extreme flow fluctuations, and other impacts. Development design can minimize impacts through stormwater treatment, storage, and infiltration. The preservation of natural areas such as wetland and wetland buffers is another conservation measure that can minimize the impacts of development.

During construction, water quality is predominantly threatened by erosion and sedimentation to onsite wetlands and the offsite wetland and stream from stormwater runoff, causing increased turbidity, damage to downstream fish spawning gravels, and overall degradation of the aquatic ecosystem. Suspended solids in turbid waters can contribute to elevated temperature and the reduction of dissolved oxygen in the water column.

Post construction runoff is proposed to be treated and infiltrated outside of the wetland and wetland buffer, and therefore will not impact surface waters. Light from developments can disturb nocturnal animal species. The site is currently developed with the Maple Lane School, which already contains lighting, and addition lighting impacts are not anticipated; however, cut-off luminaries will be used to reduce light spillage to wetland and streams located adjacent to the project site

A total area reduction of wildlife habitat may be the result of development. However, protected species are not proposed to be impacted, and regulated habitats including wetland and stream are not proposed to be impacted during or after construction.

3.4 NO ACTION ALTERNATIVE

Under the No Action Alternative, no plants, wildlife, or critical wildlife habitat would be impacted.

SECTION 4. REQUIRED AND PROPOSED MITIGATION

4.1 BREMERTON SITE

Removal of second and third growth forest is proposed. Although not required by codes and regulations to minimize impacts to migratory birds, mature trees to be removed will be cut down outside of the active nesting season. Mature tree cutting is anticipated to occur in the late summer, fall, or winter.

The project is required and proposes to provide a Stormwater Pollution Prevention Plan (SWPPP) that has required Best Management Practices (BMPs) to protect water quality during construction on the site and in the offsite utility extension area. After construction, water quality treatment and discharge of stormwater is proposed and will be designed to maintain hydrologic support to remaining wetlands and streams on and near the project site.

Although not required, the project proposes to provide nine acres of new landscaping that will include native and non-native plantings, which will provide wildlife habitat, and lighting will include cut-off luminaries to reduce light spillage to wetlands and streams located on and near the site.

Construction of the facility will unavoidably impact 45,289 square feet of Category III wetland including Wetlands J, K, L, M, N, O, P, S, and R**.** The overall site was reviewed to determine if the facility could be sited with less impact to aquatic systems including wetlands and streams. The selected project site had the least impacts to aquatic systems. The layout of the proposed facility on the proposed project site was selected to have the least impact to wetlands and no impact to stream systems. Wetlands proposed to be impacted are isolated potholes that are not connected via surface water hydrology or hydric soils to other wetland systems proposed to remain on the site or located off of the site. Mitigation for impacts to the wetlands would meet federal, state, and local regulations and provide for wetland mitigation at a 2:1 ratio, requiring a 90,578-square foot wetland mitigation project. The mitigation area proposed on the site is near Wetlands A and B (See Figure 3.1). Design of the wetland mitigation project would provide for at least a Category III, forested and scrub shrub wetland system that would be seasonally inundated.

Unavoidable impacts to the wetlands would require acquisition of a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers, and Clean Water Act Section 401 permit from the Washington State Department of Ecology, and City of Bremerton permits.

4.2 MASON COUNTY SITE

Removal of a 20 year old regenerating forest is proposed but the 1.9-acre wetland located on the site will be protected with a Mason County code required 200-foot buffer, and have signs posted at the perimeter of the buffer as required by Mason County code. A total of 12.2 acres of wetland and buffer will be protected.

The project is required and proposes to provide a SWPPP that has required BMPs to protect water quality during construction. After construction, water quality treatment and infiltration of stormwater is proposed and will be designed to maintain hydrologic support to wetlands and streams on and near the site; therefore, no impacts or mitigation is required.

Although not required, the project proposes to provide nine acres of new landscaping that will include native and non-native plantings that will provide wildlife habitat and lighting will include cut-off luminaries to reduce light spillage to wetlands and streams located on and near the site.

4.3 THURSTON COUNTY SITE

Removal of 22 mature evergreen and 50 deciduous trees is proposed. Although not required by codes and regulations to minimize impacts to migratory birds, mature trees to be removed will be cut down outside of the active nesting season. Mature tree cutting is anticipated to occur in the late summer, fall or winter.

As required by Thurston County, the four Oregon White Oak trees located on the subject site are proposed to be protected during and after construction of the proposed project.

The project is required and proposes to provide a SWPPP that has required BMPs to protect water quality during construction on the site and on the offsite utility extension areas. After construction, water quality treatment and infiltration of stormwater is proposed and will be designed to maintain hydrologic support to wetlands and streams near the project site; therefore, no impacts or mitigation is required.

Although not required, the project proposes to provide nine acres of new landscaping that will include native and non-native plantings, which will provide wildlife habitat, and lighting will include cut-off luminaries to reduce light spillage to wetlands and streams located on and near the site.

4.4 NO ACTION ALTERNATIVE

Under the No Action Alternative, mitigation would not be required.

SECTION 5. SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

5.1 BREMERTON SITE

As proposed, construction and operation of the project will have significant unavoidable adverse impacts to wetland habitat. As proposed, the project will unavoidably impact 45,289 square feet of Category III wetland and there buffer including Wetlands J, K, L, M, N, O, P, S, and R. Mitigation in accordance with federal, state, and local regulations is proposed.

As proposed, construction and operation of the project will not have significantly unavoidable adverse impacts to protected plants or animals on the Bremerton site or within areas of offsite improvements.

5.2 MASON COUNTY SITE

As proposed, construction and operation of the project will not have significantly unavoidable adverse impacts to protected plants, animals, or protected habitats on the Mason County site or within areas of offsite improvements.

5.3 THURSTON COUNTY SITE

As proposed, construction and operation of the project will not have significantly unavoidable adverse impacts to protected plants, animals, or protected habitats on the Thurston County site or within areas of offsite improvements.

5.4 NO ACTION ALTERNATIVE

The No Action Alternative, would not have significantly unavoidable adverse impacts to protected plants, animals, or protected habitats.

SECTION 6. CLOSURE

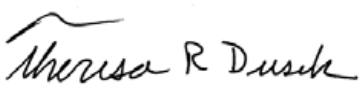
The findings and conclusions documented in this report have been prepared for specific application to this site. They have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. Our work was also performed in accordance with the terms and conditions set forth in our proposal. The conclusions and recommendations presented in this report are professional opinions based on an interpretation of information

currently available to us, and are made within the operation scope, budget, and schedule of this project. No warranty, expressed or implied, is made.

Wetland boundaries identified by AHBL, Inc. are considered preliminary until the flagged wetland boundaries are validated by a jurisdictional agency. Validation of the wetland boundaries by the regulating agencies provides a certification, usually written, that the wetland boundaries verified are the boundaries that will be regulated by each agency until a specific date or until the regulations are modified. Only the regulating agencies can provide this certification.

Because wetlands are dynamic communities affected by both natural and human activities, changes in wetland boundaries may be expected; therefore, wetland delineations cannot remain valid for an indefinite period of time. The U.S. Army Corps of Engineers typically recognizes the validity of wetland delineations for a period of 5 years after completion of a wetland delineation report. Development activities on a site 5 years after the completion of this wetland delineation report may require revision of the wetland delineation. In addition, changes in government codes, regulations, or laws may occur. Because of such changes, our observations and conclusions applicable to this site may need to be revised wholly or in part.

AHBL, Inc.



Theresa R. Dusek
Natural Resources Ecologist Project Manager

TRD/lsk

September 2011

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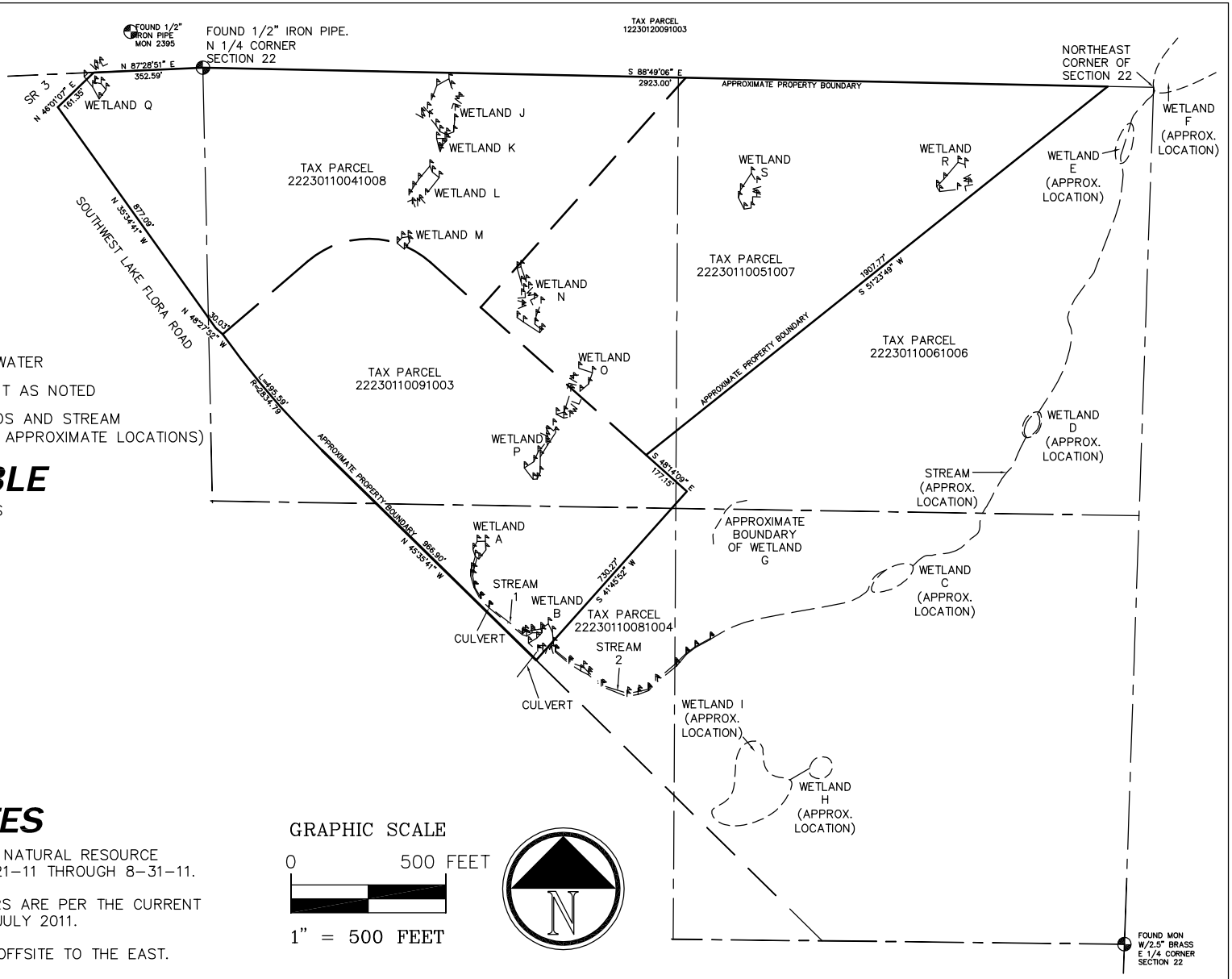
Appendix A

Wetland Survey – Bremerton Site



LEGEND

- WETLAND FLAG
- WL — WETLAND
- ORDINARY HIGH WATER
- FOUND MONUMENT AS NOTED
- OFFSITE WETLANDS AND STREAM (NOT SURVEYED, APPROXIMATE LOCATIONS)

WETLAND TABLE

WETLAND AREA	BUFFERS
A=1,662 SQ.T.	75'
B=3,936 SQ.FT.	75'
G=OFFSITE	75'
J=11,971 SQ.FT.	75'
K=653 SQ.FT.	75'
L=5,205 SQ.FT.	75'
M=924 SQ.FT.	75'
N=7,002 SQ.FT.	75'
O=5,732 SQ.FT.	75'
P=3,830 SQ.FT.	75'
Q=2,903 SQ.FT.	75'
R=5,588 SQ.FT.	75'
S=4,384 SQ.FT.	75'
STREAMS 1 & 2	35'

WETLAND NOTES

1. WETLAND FLAGS SET BY AHBL NATURAL RESOURCE DIVISION AND FIELD LOCATED 7–21–11 THROUGH 8–31–11.

2. WETLAND AND STREAM BUFFERS ARE PER THE CURRENT KITSAP COUNTY CODE IN PLACE JULY 2011.

3. WETLANDS C–I ARE LOCATED OFFSITE TO THE EAST.

GRAPHIC SCALE

0 500 FEET

1" = 500 FEET

N

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Civil Engineers
Structural Engineers
Landscape Architects
Community Planners
Land Surveyors
Neighbors

WESTERN WASHINGTON RECEPTION CENTER
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APPENDIX A
WETLAND SURVEY

A-1

Appendix B

Definition of Plant Indicator Status and Wetland Determination Data Forms - Bremerton Site

DEFINITION OF PLANT INDICATOR STATUS AND DATA FORMS

Indicator Category	**Definitions**
OBL	**Obligate Wetland**. Occurs almost always (estimated probability > 99 percent) under natural conditions in wetlands.
FACW	**Facultative Wetland**. Usually occurs in wetlands (estimated probability 67 to 99 percent), but occasionally found in uplands.
FAC	**Facultative**. Equally likely to occur in wetlands or uplands (estimated probability 34 to 66 percent).
FACU	**Facultative Upland**. Usually occurs in uplands (estimated probability 67 to 99 percent), but is occasionally found in wetlands (estimated probability 1 to 33 percent).
UPL	**Obligate Upland**. Occurs in wetlands in other regions (as defined in the *National List of Scientific Plant Names*), but occurs almost always (estimated probability > 99 percent) under natural conditions in uplands in the region specified. Species not on the list are assumed to be UPL and have an * to define these species on the data forms.
NI	**No Indicator**. These species have not been given an indicator status. They are assumed to be upland or the adjacent regional indicator status is provided with a # symbol to define these species on the data form.

Source: *National List of Plants That Occur In Wetlands: Northwest (Region 9)*. U.S. Fish and Wildlife Service Biological Report 88 (26.9). 89 pp.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton City/County: Bremerton / kitsap Sampling Date: 7-20-2011
Applicant/Owner: DOC State: WA Sampling Point: 1
Investigator(s): T. Smith Section, Township, Range: 23, sec 22, T23N R1W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): —
Subregion (LRR): A Lat: Long: Datum:
Soil Map Unit Name: Alderwood NWI classification: PSS/Em
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? NO Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Wetland A - onsite

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' radius)			
1. Alnus Rubra	20	✓	FAC
2.			
3.			
4.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Spiraea douglasii	50	✓	FACW
2. Salix lucida	20	✓	FACW
3.			
4.			
5.			
	70 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Athyrium felix-femina	10	✓	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 1 - Brewerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
2	10YR 3/2						Sandy loam	
2-13	10YR 3/2		10YR 3/3	7%			Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F6)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

7-20-2011

Project/Site: Bremerton DOC City/County: Bremerton Sampling Date: —

Applicant/Owner: State: WA Sampling Point: 2

Investigator(s): Tonya Smith Section, Township, Range: Sec 22, T23N R1W

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: Alderwood NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks: Upland west of Wetland A – onsite

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Athyrium Felix-femina	20	Y	FAC
2. Blechnum spicant	20	Y	OBL
3. Digitalis purpurea	20	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 5' radius)			
1. Rubus ursinus	20	Y	FACU
2.			
	20 = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	80 (A)		240 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 2 - Bremerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/3		N/A				gsl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): None

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: None

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): _____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton-DOC City/County: Bremerton Sampling Date: 7-20-2011
Applicant/Owner: State: WA Sampling Point: 3
Investigator(s): Tonya Smith Section, Township, Range: Sec 22, T23N R1W
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): flat Slope (%): 2%
Subregion (LRR): A Lat: Long: Datum:
Soil Map Unit Name: Alderwood NWI classification: PFO/SS
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ✓, Soil ✓, or Hydrology ____ significantly disturbed? Yes Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: Wetland B – onsite. Culvert replaced 2010. Water backs up behind a culvert under Lake Flora Road.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1. Alnus Rubra	30		FAC
2.			
3.			
4.			
	30 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. Spiraea douglasii	20		FACW
2. Rubus spectabilis	15		FAC
3.			
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 95%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: Evidence of scouring/washout = bare ground

SOIL

Sampling Point: 3- Bremerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 4/2						silt loam	
1-3	10YR 3/2		10YR 4/4	40%			silt loam	
3+	10YR 4/3						gravelly loam parent layer	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: compact gravel substrate

Depth (inches): 3

Hydric Soil Present? Yes X No ___

Remarks:

Appears recent washout may have removed some topsoil, no herbaceous layer present, silt deposits in top layer

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton - DOC City/County: Bremerton Sampling Date: 7-20-2011

Applicant/Owner: DOC State: WA Sampling Point: 4

Investigator(s): T. Smith Section, Township, Range: Sect 22, T23N, R1W

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2%

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: Alderwood NWI classification: PSS/EM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	Is the Sampled Area within a Wetland? Yes X No
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	

Remarks: Wetland C - off site

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Spirea douglasii	10	Y	FACW
2. Holodiscus discolor	30	Y	NI
3.			
4.			
5.			
	40 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Athyrium felix-femina	15	Y	FAC
2. Digitalis purpurea	5	N	FACU
3. Oenanthe sarmentosa	10	Y	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: 4 - Bremerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/2		10YR 4/3				peat	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- X Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton City/County: Bremerton Sampling Date: 7-20-2011
Applicant/Owner: DOC State: WA Sampling Point: 5
Investigator(s): Tonya Smith Section, Township, Range: S 22 T 23N R 1W
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 2%
Subregion (LRR): A Lat: Long: Datum:
Soil Map Unit Name: Alderwood NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? NO Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Wetland D - offsite

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Douglas Spiraea douglasii	50	Y	FACW
2.			
3.			
4.			
5.			
	50 = Total Cover		
Herb Stratum (Plot size: ____)			
1. Digitalis purpurea	10	N	FACU
2. Oenanthe sarmentosa	5	N	OBL
3. Carex obnupta	30	Y	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 5 - Bremerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1						Peat	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- X Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): Surface

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region 7-20-2011

Project/Site: Bremerton-DOC City/County: Bremerton Sampling Date: 6/6
Applicant/Owner: DOC State: WA Sampling Point: C6
Investigator(s): T. Smith Section, Township, Range: S22 T23N R1W
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): convex Slope (%): 3%
Subregion (LRR): A Lat: Long: Datum:
Soil Map Unit Name: Alderwood NWI classification: PSS1Em
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: Wetland E – offsite

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Rosa nutkana	15	Y	FAC
2. Salix scouleriana	15	Y	FAC
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Athyrium felix-femina	20	Y	FAC
2. Oenanthe sarmentosa	20	Y	OBL
3. Ranunculus repens	30	Y	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 6 - Bremerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1						Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- X Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): Surface

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton City/County: Bremerton Sampling Date: 7-21-2011
Applicant/Owner: DOC State: WA Sampling Point: 7
Investigator(s): T. Smith Section, Township, Range: Sec 22, T23N R1W
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): flat Slope (%): 0
Subregion (LRR): A Lat: Long: Datum:
Soil Map Unit Name: Alderwood NWI classification: Non wetland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: North of Wetland G – Non-wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Spirea douglasii	50	Y	FACW
2. Salix scouleriana	30	Y	FAC
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Athyrium felix-femina	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	120 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 80

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: Vegetation result of surface water in wet periods

SOIL

Sampling Point: 7- Bremerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1						silt loam	
2-13	10YR 4/3						gravelly sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appears to contain sheet flow through drainage swale

WETLAND DETERMINATION DATA FORM -- Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton -DOC City/County: Bremerton Sampling Date: 7-21-2011
Applicant/Owner: DOC State: WA Sampling Point: 8
Investigator(s): Tonya Smith Section, Township, Range: Sec 22, T23N R1W
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2%
Subregion (LRR): A Lat: Long: Datum:
Soil Map Unit Name: Alderwood NWI classification: PSS/EM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Wetland G - offsite

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Spiraea douglasii	50	Y	FACW
2. Salix Scouleriana	30	Y	FAC
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Athyrium felix femina	30	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 8-Brewerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 3/2		10YR 4/3				silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- X Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton City/County: Bremerton Sampling Date: 7-21-2011
Applicant/Owner: DOC State: WA Sampling Point: 9
Investigator(s): T. Smith Section, Township, Range: Sec 22, T23N, R1W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): _____
Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Alderwood NWI classification: PSS/EM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	Is the Sampled Area within a Wetland? Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks: Wetland F – offsite

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: /)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Spirea douglasii	50	Y	FACW
2. Rubus spectabilis	10	N	
3.			
4.			
5.			
	60 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Oenanthe sarmentosa	20	Y	OBL
2. Athyrium felix-femina	20	N	FAC
3. Carex obnupta	10	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: /)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: 9-Bremerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1						muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ☒ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ☒ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ☒ Saturation (A3)
- ☒ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☒ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ☒ Depth (inches): ___

Water Table Present? Yes ___ No ☒ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ☒ No ___ Depth (inches): Surface

Wetland Hydrology Present? Yes ☒ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton City/County: Bremerton Sampling Date: 7-21-2011
Applicant/Owner: DOC State: WA Sampling Point: 10
Investigator(s): T. Smith Section, Township, Range: Sec 22, T23N, R1W
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2 %
Subregion (LRR): A Lat: Long: Datum:
Soil Map Unit Name: Alderwood NWI classification: Non-wetland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significently disturbed? NO Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: Upland Between Wetland H+I offsite

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	90	Y	FAC
2.			
3.			
4.			
	90 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Gaultheria Shallon	40	Y	FACU
2.			
3.			
4.			
5.			
	40 = Total Cover		
Herb Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 60

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	40	x 3 =	120
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	130 (A)		300 (B)

Prevalence Index = B/A = 2.3

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
✓ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: 10-Bremerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2						Silt loam	
1-10	10YR 4/3		10YR 4/4				Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- X Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): _____

Water Table Present? Yes ___ No ___ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): surface

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

only top 1" saturated

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton City/County: Bremerton Sampling Date: Aug 2017
Applicant/Owner: DOC State: WA Sampling Point: 11
Investigator(s): T. Smith Section, Township, Range: 22, T23N R1W
Landform (hillslope, terrace, etc.): A Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR): Depression Lat: Long: Datum:
Soil Map Unit Name: Alderwood NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? NO Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:
Wetland J - onsite

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Spiraea douglasii	40	~~N~~ Y	FACW
2. Salix lucida	30	Y	FACW
3.			
4.			
5.			
	70 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Athyrium felix-femina	15	Y	FAC
2. Carex obnupta	15	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: ~~0~~ 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
✓ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 11 - Bremerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1						Silt loam	
8-16	10YR 4/2	95	10YR 5/6	4%	C	M	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ✓ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): None

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton City/County: Bremerton / Kitsap Sampling Date: Aug 2011
Applicant/Owner: DOC State: WA Sampling Point: 12
Investigator(s): T. Smith Section, Township, Range: Sec 22, T23N R1W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): _____
Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Alderwood NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? NO Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks: Wetland K - onsite

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ✓)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Spiraea	15	Y	FACW
2. Scouler's willow	10	Y	FAC
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Salal	15	N	FACU
2. bullrush	60	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: ✓)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 12 - Bremerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 6	10YR 3/1	100					Silt loam	
6 - 8	10YR 4/3	100					Silt loam	
8 - 16	10YR 4/2	98	7.5YR 5/6	2	C	PL	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): None

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton City/County: Bremerton/Kitsap Sampling Date: Aug 20N
Applicant/Owner: DOC State: WA Sampling Point: 13
Investigator(s): T. Smith Section, Township, Range: Sec 22, T23N R1W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): ____
Subregion (LRR): A Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Alderwood NWI classification: PSS/EM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? NO Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks: Wetland L – onsite

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. Spiraea	25	Y	FACW
2. Scouler's willow	25	Y	FAC
3.			
4.			
5.			
	50 = Total Cover		
Herb Stratum (Plot size: ____)			
1. Bullrush	25	Y	OBL
2. Mannagrass	25	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species ____	x 1 =	____
FACW species ____	x 2 =	____
FAC species ____	x 3 =	____
FACU species ____	x 4 =	____
UPL species ____	x 5 =	____
Column Totals: ____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 13 - Bremerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR2/1	100					Silt loam	
6-8	10YR 4/3	100					Silt loam	
8-16	10YR4/2	99%	7.5YR5/6	2	C	PL	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

< 2-3" ponding water marks

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton City/County: Bremerton/ Kitsap Sampling Date: Aug 2011
Applicant/Owner: DOC State: WA Sampling Point: 14
Investigator(s): T. smith Section, Township, Range: Sec 22, T23N R1W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): _____
Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Alderwood NWI classification: PSS1Em
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Wetland M - onsite

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Spiraea	40	Y	FACW
2.			
3.			
4.			
5.			
	40 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Carex obnupta	40	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
✓ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: WA- Bremerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR2/1						Silt loam	
8-16	10YR 4/2	98	10YR 5/6	2	C	PL	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ✓ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: evidence 6" depth

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton City/County: Bremerton/Kitsap Sampling Date: Aug 2011
Applicant/Owner: DOC State: WA Sampling Point: 15
Investigator(s): T. Smith Section, Township, Range: Sec 22 T23N R1W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): _____
Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Alderwood NWI classification: PFO/SS/EM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? ND Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? ND (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks: Wetland N - onsite

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Spiraea	60	Y	FACW
2. Scouler's willow	30	Y	FAC
3.			
4.			
5.			
	90 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Spiked rush	20	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: Snags + downed LWD

SOIL

Sampling Point: 15-Bremerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR2/1						Silt loam	
9-16	10YR4/2	98	7.5YR5/6	2	C	PL	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ✓ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton City/County: Bremerton / Kitsap Sampling Date: Aug 2011
Applicant/Owner: DOC State: WA Sampling Point: 16
Investigator(s): T. Smith Section, Township, Range: Sec 22 T23N R1W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): _____
Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Alderwood NWI classification: PSS/EM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: Wetland O - onsite

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Salal	20	Y	UPL
2. Spiraea	50	Y	FACW
3.			
4.			
5.			
	70 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. soft rush	20	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
✓ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 16 - Bremerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR2/1						Sandy loam	
2-16	10YR3/2	99	7.5YR5/6	1	C	PL	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): ___

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: evidence of 6" ponding

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton City/County: Bremerton/Kitsap Sampling Date: Aug 2011
Applicant/Owner: DOC State: WA Sampling Point: 17
Investigator(s): T. Smith Section, Township, Range: Sec 22 T23N R1W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): _____
Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Alderwood NWI classification: PSS/EM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? ND (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: Wetland P – onsite

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Salal	20	Y	UPL
2. Spiraea	60	Y	FACW
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. soft rush	20		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: No connection between wetland O & P

SOIL

Sampling Point: 17 - Bremerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1						Sandy loam	
4-18	10YR 3/2	99	7.5YR 5/6	1	C	PL	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: evidence of 8" ponding

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton City/County: Bremerton / Kitsap Sampling Date: Aug 2011
Applicant/Owner: DOC State: WA Sampling Point: 18
Investigator(s): T. Smith Section, Township, Range: Sec 22 T23N R1W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): _____
Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Alderwood NWI classification: PFO/SS/EM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks: Wetland Q - onsite

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Red alder	45	Y	FAC
2.			
3.			
4.			
	45 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Scouler's willow	30	Y	FACW
2.			
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Lady fern	20	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
✓ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 18-Bremerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR3/2	98	7.5YR5/6	1	C	PL	silt loam	some gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): none

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: evidence of 1-2" water

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton City/County: Bremerton / Kitsap Sampling Date: Aug 2011
Applicant/Owner: DOC State: WA Sampling Point: 19
Investigator(s): T. Smith Section, Township, Range: Sec 22 T23N R1W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): _____
Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Alderwood NWI classification: PSS/EM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks: Wetland R - onsite

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. spiraea	60	Y	FACW
2. Pacific willow	20	Y	FACW
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. american brookline	30	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
✓ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 19-Bremerton

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR3/1						Silt loam	
2-6	10YR2/1						Silt loam	
6-18	10YR 3/1						Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ✓ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bremerton City/County: Bremerton/Kitsap Sampling Date: Aug 2011
Applicant/Owner: DOC State: WA Sampling Point: 20
Investigator(s): T. Smith Section, Township, Range: Sec 22 T23N R1W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): convex Slope (%): _____
Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Alderwood NWI classification: PSS/EM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? ND Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? ND (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks: Wetland 5 – onsite

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: /)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Spiraea	20	Y	FACW
2. Pacific willow	20	Y	FACW
3.			
4.			
5.			
	40 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. soft rush	20	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
✓ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 20-- Bremerton

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/1						Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ✓ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

evidence of 6" of ponded water

Appendix C

Wetland Rating Forms - Bremerton Site

(rating forms provided for wetlands on and within 500 feet of the site)

Wetland name or number: A-Bremerton

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland A - onsite Date of site visit: August 2011

Rated by: T. SMITH Trained by Ecology? Yes____ No____ Date of training:____

SEC: 22 TWNSHP: 23N RNGE: 1 Is S/T/R in Appendix D? No

Map of wetland unit: Figure: Appendix A Estimated size: 1,662 sf

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I____ II____ III__X__ IV____

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	9
Score for Hydrologic Functions	10
Score for Habitat Functions	19
TOTAL Score for Functions	38

Category based on SPECIAL CHARACTERISTCS of Wetland I____ II____ Does not apply __X__

Final Category (choose the "highest" category from above") 3

Summary of basic information about the wetland unit.

Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

SP1.	*Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2.	*Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Western Washington

[redacted]

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe (NO) – **Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   (NO) – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   (NO) – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   (NO) – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   (NO) – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 (YES) – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   (No) – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

[redacted]	[redacted]
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D 1	**Does the wetland have the potential to improve water quality?**	
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) .....points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet.....points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*).....points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** **2**
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area .....points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area .....points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area .....points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area .....points = 0 **Map of Cowardin vegetation classes**	**Figure ___** **5**
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland .....points = 4 • Area seasonally ponded is > 1/4 total area of wetland .....points = 2 • Area seasonally ponded is < 1/4 total area of wetland .....points = 0 **Map of Hydroperiods**	**Figure ___** **2**
	Total for D 1 *Add the points in the boxes above*	9
D 2	**Does the wetland have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 44)* Multiplier 1
◆	**TOTAL – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	9
D 3	**Does the wetland have the potential to reduce flooding and erosion?**	
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) .....points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet.....points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*.....points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet.....points = 7 • The wetland is a "headwater" wetland .....points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet .....points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet .....points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water .points = 1 • Marks of ponding less than 0.5 ft.....points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit.....points = 5 • The area of the basin is 10 to 100 times the area of the unit.....points = 3 • The area of the basin is more than 100 times the area of the unit .....points = 0 • Entire unit is in the FLATS class.....points = 5	3
	Total for D 3 *Add the points in the boxes above*	5

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 49)* Multiplier <u>2</u>
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	10

Comments:

Pages 5-7 do not apply to wetland ∴ removed

Wetland name or number: A-Bremerton

WETLAND FUNCTIONS – Indicators that wetland functions to provide important habitat (only 1 score per box)

H 1 Does the wetland have the potential to provide habitat for many species?

H 1.1 Vegetation structure *(see P. 72)*:

Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.

___ Aquatic Bed
_X_ Emergent plants
_X_ Scrub/shrub (areas where shrubs have > 30% cover)
___ Forested (areas where trees have > 30% cover)

If the unit has a forested class check if:

___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon.

Add the number of vegetation types that qualify. If you have: **Map of Cowardin vegetation classes**
4 structures or more .....points = 4 — 3 structures .....points = 2
2 structures .....points = 1 — 1 structure.....points = 0

Figure ___ → **1**

H 1.2 Hydroperiods *(see p.73)*:

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).

___ Permanently flooded or inundated — 4 or more types present points = 3
_X_ Seasonally flooded or inundated — 3 or more types present ..... points = 2
___ Occasionally flooded or inundated — 2 types present ..... points = 1
_X_ Saturated only — 1 type present..... points = 0
___ Permanently flowing stream or river in, or adjacent to, the wetland
_X_ Seasonally flowing stream in, or adjacent to, the wetland
___ **Lake-fringe wetland .....= 2 points**
___ **Freshwater tidal wetland.....= 2 points**

Map of hydroperiods

Figure ___ → **2**

H 1.3 Richness of Plant Species *(see p. 75)*:

Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.

If you counted: > 19 species.....points = 2
5 – 19 species .....points = 1
< 5 species.....points = 0

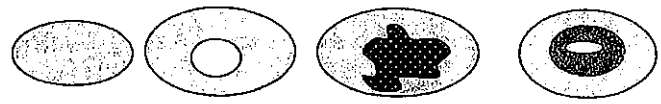
List species below if you want to:

_____
_____
_____
_____

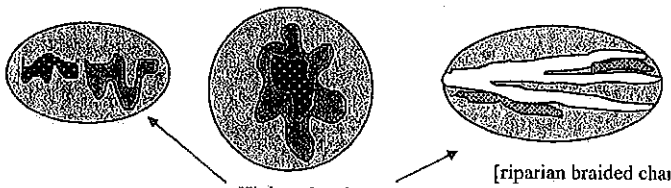
1

H 1.4 Interspersion of Habitats *(see p. 76)*:

Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points — Low = 1 point — Moderate = 2 points



High = 3 points

Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".

Use map of Cowardin classes.

Figure ___ → **1**

H 1.5 Special Habitat Features *(see p. 77)*:

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

_X_ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long)
___ Standing snags (diameter at the bottom > 4 inches) in the wetland
___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m)
___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
_X_ Invasive plants cover less than 25% of the wetland area in each stratum of plants
NOTE: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1 TOTAL Score – potential for providing habitat — *Add the points in the column above* → **7**

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(Only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use).. ..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ Heavy grazing in buffer..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0** ____ Buffer does not meet any of the criteria above..... **points = 1** **Arial photo showing buffers**	**Figure ___** **4**
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* **YES = 4 points** (go to H 2.3) **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? **YES = 2 points** (go to H 2.3) **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? **NO** = 0 points	2

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife *(full descriptions in WDFW PHS report p. 152)*. ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important *(full descriptions in WDFW PHS report p. 158)*. _X_ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie *(full descriptions in WDFW PHS report p. 161)*. ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	1
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed..... points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile..... points = 3 • There is at least 1 wetland within 1/2 mile..... points = 2 • There are no wetlands within 1/2 mile ..... points = 0	5
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	12
	TOTAL for H 1 from page 8	7
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	19

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type. Check all answers that apply to the wetland. Circle the Category when the appropriate criteria are met.	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. **YES** = Go to SC 1.1 **NO** ✓	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES** = Category I **NO** = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? **YES** = Category I **NO** = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D ✓ or accessed from WNHP/DNR web site _____ **YES** _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 **NO** ✓ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? **YES** = Category 1 **NO** ✓ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? **YES** = go to question 3 **(NO)** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? **YES** = go to question 3 **(NO)** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? **YES** = Is a bog for purpose of rating **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? **YES** = Category I **NO** = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. **YES** = Category I **(NO)** = ____ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* **YES** = Go to SC 5.1 **(NO)** ____ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) **YES** = Category I **NO** = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES** = Go to SC 6.1 **NO** ___✓___ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? **YES** = Category II **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES** = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	

Comments:

Wetland name or number: B-Bremerton

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland B Date of site visit: August 2011

Rated by: T. SMITH Trained by Ecology? Yes____ No_____ Date of training:_____

SEC: 22 TWNSHP: 23N RNGE: 1 Is S/T/R in Appendix D? No

Map of wetland unit: Figure Appendix A Estimated size 3,936 sf

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I_____ II_____ III__X__ IV_____

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	18
Score for Hydrologic Functions	10
Score for Habitat Functions	18
TOTAL Score for Functions	46

Category based on SPECIAL CHARACTERISTCS of Wetland I_____ II_____ Does not apply __X__

Final Category (choose the "highest" category from above") **3**

Summary of basic information about the wetland unit.

Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	X

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

SP1.	*Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2.	*Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number: B-Bremerton

Classification of Vegetated Wetlands for Western Washington

[redacted]

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe (NO) – **Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   (NO) – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____At least 30% of the open water area is deeper than 6.6 (2 m)?
   (NO) – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____The wetland is on a slope *(slope can be very gradual)*.
   _____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   (NO) – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding.*.
   NO – go to 6 (YES) – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 (YES) – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   (No) – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

[redacted]	[redacted]
Slope + Riverine	Riverine
Slope + Depressional	Depressional
~~Slope + Lake-fringe~~	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
~~Depressional + Lake-fringe~~	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D 1	**Does the wetland have the potential to improve water quality?**	
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) .....points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet.....points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*).....points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** **2**
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area .....points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area .....points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area .....points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area .....points = 0 **Map of Cowardin vegetation classes**	**Figure ___** **3**
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland.....points = 4 • Area seasonally ponded is > 1/4 total area of wetland.....points = 2 • Area seasonally ponded is < 1/4 total area of wetland.....points = 0 **Map of Hydroperiods**	**Figure ___** **4**
	Total for D 1 *Add the points in the boxes above*	9
D 2	**Does the wetland have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other STORMWATER DISCHARGES FROM ROADWAY SURFACE **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 44)* Multiplier 2
◆	**TOTAL – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	18
D 3	**Does the wetland have the potential to reduce flooding and erosion?**	
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) .....points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet.....points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*.....points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet.....points = 7 • The wetland is a "headwater" wetland .....points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet .....points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet .....points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water .points = 1 • Marks of ponding less than 0.5 ft.....points = 0	3
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit.....points = 5 • The area of the basin is 10 to 100 times the area of the unit.....points = 3 • The area of the basin is more than 100 times the area of the unit .....points = 0 • Entire unit is in the FLATS class.....points = 5	0
	Total for D 3 *Add the points in the boxes above*	5

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	10

Comments:

Pages 5-7 do not apply to wetland ∴ removed

HABITAT FUNCTIONS – Indicators that wetland unit has the potential to provide high quality habitat. (only 1 score per box)

H 1 Does the wetland have the potential to provide habitat for many species?

H 1.1 Vegetation structure *(see P. 72)*:

Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.

____ Aquatic Bed
____ Emergent plants
__X__ Scrub/shrub (areas where shrubs have > 30% cover)
__X__ Forested (areas where trees have > 30% cover)

If the unit has a forested class check if:

____ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon.

Add the number of vegetation types that qualify. If you have: **Map of Cowardin vegetation classes**
4 structures or more .....points = 4 — 3 structures .....points = 2
2 structures .....points = 1 — 1 structure.....points = 0

Figure ___

1

H 1.2 Hydroperiods *(see p.73)*:

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).

____ Permanently flooded or inundated
__X__ Seasonally flooded or inundated
____ Occasionally flooded or inundated
__X__ Saturated only
____ Permanently flowing stream or river in, or adjacent to, the wetland
__X__ Seasonally flowing stream in, or adjacent to, the wetland
____ **Lake-fringe wetland .....= 2 points**
____ **Freshwater tidal wetland.....= 2 points**

4 or more types present points = 3
3 or more types present ..... points = 2
2 types present ..... points = 1
1 type present..... points = 0

Map of hydroperiods

Figure ___

2

H 1.3 Richness of Plant Species *(see p. 75)*:

Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.

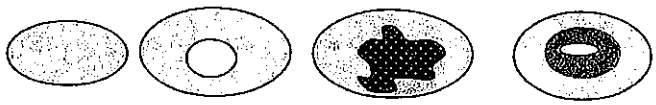
List species below if you want to:

If you counted:
> 19 species.....points = 2
5 – 19 species .....points = 1
< 5 species.....points = 0

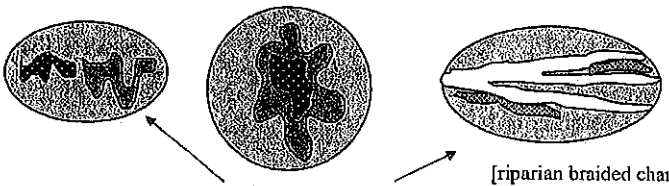
1

H 1.4 Interspersion of Habitats *(see p. 76)*:

Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [riparian braided channels]

Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".

Use map of Cowardin classes.

Figure ___

3

H 1.5 Special Habitat Features *(see p. 77)*:

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

__X__ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long)
____ Standing snags (diameter at the bottom > 4 inches) in the wetland
____ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m)
____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
____ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
__X__ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1 TOTAL Score – potential for providing habitat — *Add the points in the column above* — 9

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(Only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use).. ..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ Heavy grazing in buffer..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0** ____ Buffer does not meet any of the criteria above..... **points = 1** **Arial photo showing buffers**	**Figure ___** **2**
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* **YES = 4 points** (go to H 2.3) **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? **YES = 2 points** (go to H 2.3) **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? **NO** = 0 points	1

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*

Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?

NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).

____ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife *(full descriptions in WDFW PHS report p. 152)*.

____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important *(full descriptions in WDFW PHS report p. 158)*.

_X_ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie *(full descriptions in WDFW PHS report p. 161)*.

____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*

____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats = **4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed ..... points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3
- There is at least 1 wetland within 1/2 mile ..... points = 2
- There are no wetlands within 1/2 mile ..... points = 0

5

H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4* **9**

TOTAL for H 1 from page 8 **9**

◆ **Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1*** **18**

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Unit: Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. **YES** = Go to SC 1.1 **NO** ✓	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES** = Category I **(NO)** = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? **YES** = Category I **(NO)** = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ **YES** _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 **NO** _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? **YES** = Category 1 **(NO)** _____ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? **YES** = go to question 3 **(NO)** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? **YES** = go to question 3 **(NO)** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? **YES** = Is a bog for purpose of rating **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? **YES** = Category I **NO** = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests:** (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests:** (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. **YES** = Category I **NO** = ____ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* **YES** = Go to SC 5.1 **NO** ____ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) **YES** = Category I **NO** = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES** = Go to SC 6.1 **NO** ____ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? **YES** = Category II **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES** = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	

Comments:

Wetland name or number: E-Bremerton

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland E - offsite Date of site visit: August 2011

Rated by: T. SMITH Trained by Ecology? Yes_____ No_____ Date of training:_____

SEC: 22 TWNSHP: 23N RNGE: 1 Is S/T/R in Appendix D? No

Map of wetland unit: Figure Appendix A Estimated size < 0.1 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I_____ II_____ III__X__ IV_____

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	8
Score for Hydrologic Functions	18
Score for Habitat Functions	22
TOTAL Score for Functions	48

Category based on SPECIAL CHARACTERISTCS of Wetland I_____ II_____ Does not apply __X__

Final Category (choose the "highest" category from above") **3**

Summary of basic information about the wetland unit.

Estuarine		**Depressional**	
Natural Heritage Wetland		**Riverine**	X
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

SP1.	*Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2.	*Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Western Washington

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** NO
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 YES – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Pages 3, 4 & 7 do not apply to wetland ∴ removed

R 1	**Does the wetland have the potential to improve water quality?** *(see p.52)*	
	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: • Depressions cover > 3/4 area of wetland.....points = 8 • Depressions cover > 1/2 area of wetland.....points = 4 **(If depressions > 1/2 of area of unit draw polygons on aerial photo or map)** • Depressions present but cover < 1/2 area of wetland.....points = 2 • No depressions present.....points = 0	**Figure ___** **2**
	R 1.2 Characteristics of the vegetation in the unit (areas with >90% cover at person height): • Trees or shrubs > 2/3 area of the unit.....points = 8 • Trees or shrubs > 1/3 area of the wetland.....points = 6 • Ungrazed, herbaceous plants > 2/3 area of unit.....points = 6 • Ungrazed herbaceous plants > 1/3 area of unit.....points = 3 • Trees, shrubs, and ungrazed herbaceous < 1/3 area of unit.....points = 0 **Aerial photo or map showing polygons of different vegetation types**	**Figure ___** **6**
	Add the points in the boxes above	8
R 2	**Does the wetland have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality. ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 53)* Multiplier 1
◆	**TOTAL – Water Quality Functions** Multiply the score from R1 by R2; then *add score to table on p. 1*	8
R 3	**Does the wetland have the potential to reduce flooding and erosion?**	
	R 3.1 Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of unit) / (average width of stream between banks).* • If the ratio is more than 20 .....points = 9 • If the ratio is between 10 – 20 .....points = 6 • If the ratio is 5- <10 .....points = 4 • If the ratio is 1- <5 .....points = 2 • If the ratio is < 1 .....points = 1 **Aerial photo or map showing average widths**	**Fignre ___** **2**
	R 3.2 Characteristics of vegetation that slow down water velocities during floods: *Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description. (polygons need to have >90% cover at person height NOT Cowardin classes):* • Forest or shrub for > 1/3 area OR herbaceous plants > 2/3 area .....points = 7 • Forest or shrub for > 1/10 area OR herbaceous plants > 1/3 area.....points = 4 • Vegetation does not meet above criteria .....points = 0 **Aerial photo or map showing polygons of different vegetation types**	**Figure ___** **7**
	Add the points in the boxes above	9
R 4	**Does the wetland have the opportunity to reduce flooding and erosion?** Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* ____ There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding. ____ There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding ____ Other _____ *(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)* **YES** multiplier is 2 **NO** multiplier is 1	*(see p.57)* Multiplier 2
◆	**TOTAL – Hydrologic Functions** Multiply the score from R3 by R4; then *add score to table on p. 1*	18

Comments:

WETLAND FUNCTIONS – Indicators that wetland functions to provide important habitat

H 1 Does the wetland have the potential to provide habitat for many species?

H 1.1 Vegetation structure *(see P. 72)*:

Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.

___ Aquatic Bed
_X_ Emergent plants
_X_ Scrub/shrub (areas where shrubs have > 30% cover)
___ Forested (areas where trees have > 30% cover)

If the unit has a forested class check if:

___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon.

Add the number of vegetation types that qualify. If you have:
4 structures or more .....points = 4
2 structures .....points = 1

Map of Cowardin vegetation classes
3 structures .....points = 2
1 structure.....points = 0

Figure ___

1

H 1.2 Hydroperiods *(see p.73)*:

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).

___ Permanently flooded or inundated
_X_ Seasonally flooded or inundated
___ Occasionally flooded or inundated
_X_ Saturated only
___ Permanently flowing stream or river in, or adjacent to, the wetland
_X_ Seasonally flowing stream in, or adjacent to, the wetland
___ **Lake-fringe wetland .....= 2 points**
___ **Freshwater tidal wetland.....= 2 points**

4 or more types present points = 3
3 or more types present ..... points = 2
2 types present ..... points = 1
1 type present..... points = 0

Map of hydroperiods

Figure ___

2

H 1.3 Richness of Plant Species *(see p. 75)*:

Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.

If you counted:
> 19 species.....points = 2
5 – 19 species .....points = 1
< 5 species.....points = 0

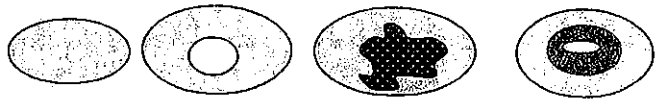
List species below if you want to:

_____
_____
_____
_____

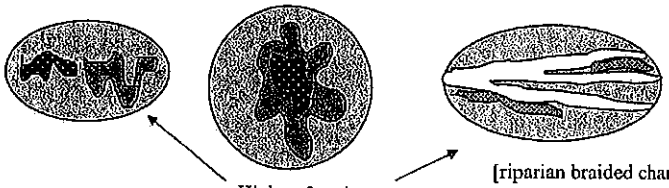
1

H 1.4 Interspersion of Habitats *(see p. 76)*:

Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [riparian braided channels]

Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".

Use map of Cowardin classes.

Figure ___

3

H 1.5 Special Habitat Features *(see p. 77)*:

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

_X_ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long)
___ Standing snags (diameter at the bottom > 4 inches) in the wetland
___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m)
___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
_X_ Invasive plants cover less than 25% of the wetland area in each stratum of plants
NOTE: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1 TOTAL Score – potential for providing habitat *Add the points in the column above* **9**

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(Only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use).. ..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ Heavy grazing in buffer..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0** ____ Buffer does not meet any of the criteria above..... **points = 1** **Arial photo showing buffers**	**Figure ___** **5**
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* **YES = 4 points** (go to H 2.3) **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? **YES = 2 points** (go to H 2.3) **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? **NO** = 0 points	2

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*

Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?
NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
____ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife *(full descriptions in WDFW PHS report p. 152)*.
____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important *(full descriptions in WDFW PHS report p. 158)*.
_X_ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie *(full descriptions in WDFW PHS report p. 161)*.
____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*
____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats = **4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed ..... points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3
- There is at least 1 wetland within 1/2 mile ..... points = 2
- There are no wetlands within 1/2 mile ..... points = 0

5

H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4* 13

TOTAL for H 1 from page 8 9

◆ **Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1*** 22

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. **YES** = Go to SC 1.1 **NO** ____	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES** = Category I **NO** = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? **YES** = Category I **NO** = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D ✓ or accessed from WNHP/DNR web site ____ **YES** ____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 **NO** ✓ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? **YES** = Category 1 **NO** ____ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? **YES** = go to question 3 **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? **YES** = go to question 3 **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? **YES** = Is a bog for purpose of rating **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? **YES** = Category I **NO** = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests:** (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests:** (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. **YES** = Category I **NO** = ____ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* **YES** = Go to SC 5.1 **NO** ____ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) **YES** = Category I **NO** = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES** = Go to SC 6.1 **NO** ____ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? **YES** = Category II **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES** = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	

Comments:

Wetland name or number: Wetland F_Bremerton

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland F Date of site visit: 7-21-2011

Rated by: T. SMITH Trained by Ecology? Yes____ No____ Date of training:____

SEC: 22 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? No

Map of wetland unit: Figure Appendix A Estimated size >1 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I____ II__X__ III____ IV____

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	22
Score for Hydrologic Functions	20
Score for Habitat Functions	25
TOTAL Score for Functions	67

Category based on SPECIAL CHARACTERISTCS of Wetland I____ II____ Does not apply __X__

Final Category (choose the "highest" category from above") **2**

Summary of basic information about the wetland unit.

Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

SP1.	*Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2.	*Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Western Washington

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____The wetland is on a slope *(slope can be very gradual)*.
   _____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 YES – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number: Wetland F_Bremerton

D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) .....points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet.....points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*).....points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** **2**
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	4
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area .....points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area .....points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area .....points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area .....points = 0 **Map of Cowardin vegetation classes**	**Figure ___** **3**
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland.....points = 4 • Area seasonally ponded is > 1/4 total area of wetland.....points = 2 • Area seasonally ponded is < 1/4 total area of wetland.....points = 0 **Map of Hydroperiods**	**Figure ___** **2**
	Total for D 1 *Add the points in the boxes above*	11
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland _x_ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ___ Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 44)* Multiplier 2
◆	**TOTAL – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	22
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) .....points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet.....points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*.....points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet.....points = 7 • The wetland is a "headwater" wetland .....points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet .....points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet .....points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water .points = 1 • Marks of ponding less than 0.5 ft.....points = 0	3
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit.....points = 5 • The area of the basin is 10 to 100 times the area of the unit.....points = 3 • The area of the basin is more than 100 times the area of the unit .....points = 0 • Entire unit is in the FLATS class.....points = 5	5
	Total for D 3 *Add the points in the boxes above*	10

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* __x__ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	20

Comments:

pages 5-7 do not apply to wetland ∴ removed

H 1 Does the wetland have the potential to provide habitat for many species?

H 1.1 Vegetation structure *(see P. 72)*:
Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.
___ Aquatic Bed
X Emergent plants
X Scrub/shrub (areas where shrubs have > 30% cover)
x Forested (areas where trees have > 30% cover)
If the unit has a forested class check if:
___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon.
Add the number of vegetation types that qualify. If you have: **Map of Cowardin vegetation classes**
4 structures or more .....points = 4 — 3 structures .....points = 2
2 structures .....points = 1 — 1 structure.....points = 0

Figure ___
2

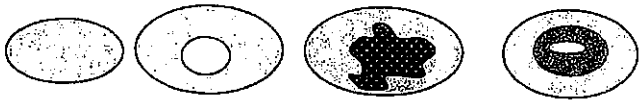
H 1.2 Hydroperiods *(see p.73)*:
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).
x Permanently flooded or inundated — 4 or more types present points = 3
x Seasonally flooded or inundated — 3 or more types present ..... points = 2
X Occasionally flooded or inundated — 2 types present ..... points = 1
X Saturated only — 1 type present..... points = 0
___ Permanently flowing stream or river in, or adjacent to, the wetland
x Seasonally flowing stream in, or adjacent to, the wetland
___ **Lake-fringe wetland .....= 2 points**
___ **Freshwater tidal wetland.....= 2 points** **Map of hydroperiods**

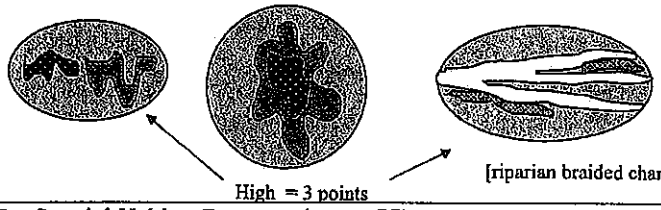
Figure ___
3

H 1.3 Richness of Plant Species *(see p. 75)*:
Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)*
You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted: > 19 species.....points = 2; 5 – 19 species .....points = 1; < 5 species.....points = 0
List species below if you want to:
_____
_____
_____
_____

1

H 1.4 Interspersion of Habitats *(see p. 76)*:
Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.


None = 0 points Low = 1 point Moderate = 2 points



High = 3 points

Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".

Use map of Cowardin classes.

Figure ___
3

H 1.5 Special Habitat Features *(see p. 77)*:
Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.
x Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long)
x Standing snags (diameter at the bottom > 4 inches) in the wetland
___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m)
___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
x At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
X Invasive plants cover less than 25% of the wetland area in each stratum of plants
NOTE: The 20% stated in early printings of the manual on page 78 is an error.

4

H 1 TOTAL Score – potential for providing habitat *Add the points in the column above* 13

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	[illegible]
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use).. ..... **points = 5** __x__ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ Heavy grazing in buffer..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0** ____ Buffer does not meet any of the criteria above..... **points = 1** **Arial photo showing buffers**	**Figure ___** **4**
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* **YES = 4 points** (go to H 2.3) **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? **YES = 2 points** (go to H 2.3) **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? **NO** = 0 points	2

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). _X_ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*). ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	1
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed..... points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile..... points = 3 • There is at least 1 wetland within 1/2 mile..... points = 2 • There are no wetlands within 1/2 mile ..... points = 0	5
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	12
	TOTAL for H 1 from page 8	13
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	25

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. **YES** = Go to SC 1.1 **NO** (circled) ____	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES** = Category I **NO** = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? **YES** = Category I **NO** = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D ✓ or accessed from WNHP/DNR web site ____ **YES** ____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 **NO** ✓ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? **YES** = Category 1 **NO** ✓ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? **YES** = go to question 3 **NO** (circled) = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? **YES** = go to question 3 **NO** (circled) = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? **YES** = Is a bog for purpose of rating **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? **YES** = Category I **NO** = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. **YES** = Category I **NO** = ____ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* **YES** = Go to SC 5.1 **NO** ____ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) **YES** = Category I **NO** = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES** = Go to SC 6.1 **NO** ____ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? **YES** = Category II **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES** = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	

Comments:

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland G - Offsite Date of site visit: August 2011

Rated by: T. SMITH Trained by Ecology? Yes____ No____ Date of training:____

SEC: 22 TWNSHP: 23N RNGE: 1 Is S/T/R in Appendix D? No

Map of wetland unit: Figure Appendix A Estimated size <0.2 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I____ II____ III__X__ IV____

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	13
Score for Hydrologic Functions	10
Score for Habitat Functions	20
TOTAL Score for Functions	43

Category based on SPECIAL CHARACTERISTCS of Wetland I____ II____ Does not apply __X__

Final Category (choose the "highest" category from above") 3

Summary of basic information about the wetland unit.

Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

SP1.	*Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2.	*Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Western Washington

[redacted]

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   If your wetland can be classified as a Freshwater Tidal Fringe use the forms for ***Riverine*** *wetlands. If it is a Saltwater Tidal Fringe it is rated as an* ***Estuarine*** *wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 20% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual).*
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

[redacted]	[redacted]
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

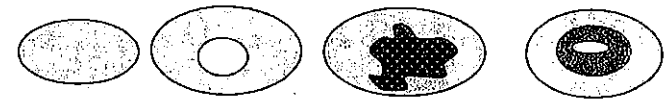
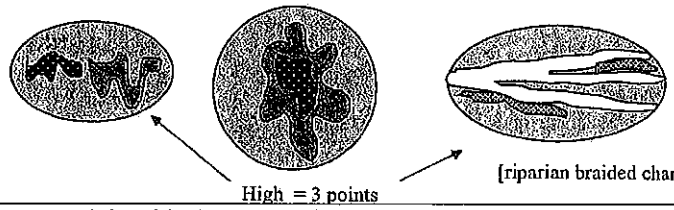
	WATER QUALITY FUNCTIONS - Indicators that the unit functions to improve water quality	Enter Rating (H, M, L)
D 1	**Does the wetland have the potential to improve water quality?**	
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) .....points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet.....points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*).....points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___ 2**
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	4
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area .....points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area .....points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area .....points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area .....points = 0 **Map of Cowardin vegetation classes**	**Figure ___ 3**
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland.....points = 4 • Area seasonally ponded is > 1/4 total area of wetland.....points = 2 • Area seasonally ponded is < 1/4 total area of wetland.....points = 0 **Map of Hydroperiods**	**Figure ___ 4**
	Total for D 1 *Add the points in the boxes above*	13
D 2	**Does the wetland have the opportunity to improve water quality?** *(see p. 44)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other STORMWATER DISCHARGES FROM ROADWAY SURFACE **YES** multiplier is 2 **NO** multiplier is 1	Multiplier 1
◆	**TOTAL – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	13
	HYDROLOGIC FUNCTIONS - Indicators that the unit functions to reduce flooding and stream erosion	Enter Rating (H, M, L)
D 3	**Does the wetland have the potential to reduce flooding and erosion?**	
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) .....points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet.....points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*.....points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet.....points = 7 • The wetland is a "headwater" wetland .....points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet .....points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet .....points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water .points = 1 • Marks of ponding less than 0.5 ft.....points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit.....points = 5 • The area of the basin is 10 to 100 times the area of the unit.....points = 3 • The area of the basin is more than 100 times the area of the unit .....points = 0 • Entire unit is in the FLATS class.....points = 5	3
	Total for D 3 *Add the points in the boxes above*	5

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	10

Comments:

Pages 5-7 do not apply to wetland : removed

HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat

		Circle the appropriate rating
H 1	**Does the wetland have the potential to provide habitat for many species?**	
	H 1.1 Vegetation structure *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed _X_ Emergent plants _X_ Scrub/shrub (areas where shrubs have > 30% cover) ___ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more .....points = 4 — 3 structures .....points = 2 2 structures .....points = 1 — 1 structure.....points = 0	**Figure ___** **1**
	H 1.2 Hydroperiods *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated — 4 or more types present points = 3 _X_ Seasonally flooded or inundated — 3 or more types present ..... points = 2 ___ Occasionally flooded or inundated — 2 types present ..... points = 1 _X_ Saturated only — 1 type present..... points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland .....= 2 points** ___ **Freshwater tidal wetland.....= 2 points** **Map of hydroperiods**	**Figure ___** **1**
	H 1.3 Richness of Plant Species *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species.....points = 2 5 – 19 species .....points = 1 List species below if you want to: < 5 species.....points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  None = 0 points Low = 1 point Moderate = 2 points  High = 3 points [riparian braided channels] Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** **2**
	H 1.5 Special Habitat Features *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* _X_ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* _X_ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	2
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	7

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use).. ..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ Heavy grazing in buffer..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0** ____ Buffer does not meet any of the criteria above..... **points = 1** **Arial photo showing buffers**	**Figure ___** **5**
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* **YES = 4 points** (go to H 2.3) **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? **YES = 2 points** (go to H 2.3) **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? **NO** = 0 points	2

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*

Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?
NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
____ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife *(full descriptions in WDFW PHS report p. 152)*.
____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important *(full descriptions in WDFW PHS report p. 158)*.
__X__ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie *(full descriptions in WDFW PHS report p. 161)*.
____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*
____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats = **4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed ..... points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3
- There is at least 1 wetland within 1/2 mile ..... points = 2
- There are no wetlands within 1/2 mile ..... points = 0

5

	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	13
	TOTAL for H 1 from page 8	7
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	20

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type. Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. **YES** = Go to SC 1.1 **NO** ____	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES** = Category I **NO** = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? **YES** = Category I **NO** = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D ___✓___ or accessed from WNHP/DNR web site _____ **YES** ____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 **NO** ___✓___ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? **YES** = Category 1 **NO** _____ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? **YES** = go to question 3 **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? **YES** = go to question 3 **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? **YES** = Is a bog for purpose of rating **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? **YES** = Category I **NO** = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests:** (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests:** (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. **YES** = Category I **NO** = ____ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* **YES** = Go to SC 5.1 **NO** ____ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) **YES** = Category I **NO** = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES** = Go to SC 6.1 **NO** ____ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? **YES** = Category II **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES** = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	

Comments:

Wetland name or number: J-Bremerton

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland J -onsite Date of site visit: August 2011

Rated by: T. SMITH Trained by Ecology? Yes____ No____ Date of training:____

SEC: 22 TWNSHP: 23N RNGE: 1 Is S/T/R in Appendix D? No

Map of wetland unit: Figure Appendix A Estimated size 11,971 sf

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I____ II____ III__X__ IV____

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	12
Score for Hydrologic Functions	10
Score for Habitat Functions	17
TOTAL Score for Functions	39

Category based on SPECIAL CHARACTERISTCS of Wetland I____ II____ Does not apply __X__

Final Category (choose the "highest" category from above") 3

Summary of basic information about the wetland unit.

Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

SP1.	*Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2.	*Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have more than one wetland class present in the unit. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 YES – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

Combination of classes found within the wetland unit being rated	HGM class to use in the rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D 1	**Does the wetland have the potential to improve water quality?**	Enter score on box (see p. 49)
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) .....points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet.....points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*).....points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___ 3**
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area .....points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area .....points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area .....points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area .....points = 0 **Map of Cowardin vegetation classes**	**Figure ___ 5**
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland .....points = 4 • Area seasonally ponded is > 1/4 total area of wetland .....points = 2 • Area seasonally ponded is < 1/4 total area of wetland .....points = 0 **Map of Hydroperiods**	**Figure ___ 4**
	Total for D 1 *Add the points in the boxes above*	12
D 2	**Does the wetland have the opportunity to improve water quality?** *(see p. 44)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other STORMWATER DISCHARGES FROM ROADWAY SURFACE **YES** multiplier is 2 **NO** multiplier is 1	Multiplier 1
◆	**TOTAL – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	12
	HYDROLOGIC FUNCTIONS Indicators that wetland functions to improve water quality	
D 3	**Does the wetland have the potential to reduce flooding and erosion?** (see p. 49)	
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) .....points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet.....points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*.....points = 0	4
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet.....points = 7 • The wetland is a "headwater" wetland .....points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet .....points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet .....points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water .points = 1 • Marks of ponding less than 0.5 ft.....points = 0	3
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit.....points = 5 • The area of the basin is 10 to 100 times the area of the unit.....points = 3 • The area of the basin is more than 100 times the area of the unit .....points = 0 • Entire unit is in the FLATS class.....points = 5	3
	Total for D 3 *Add the points in the boxes above*	10

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 49)* Multiplier 1
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	10

Comments:

Pages 5-7 do not apply to wetland ∴ removed

WETLAND FUNCTIONS - Indicators that wetland functions to provide important habitat (only 1 score per box)

H 1 Does the wetland have the potential to provide habitat for many species?

H 1.1 Vegetation structure *(see P. 72)*:

Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.

____ Aquatic Bed
____ Emergent plants
__X__ Scrub/shrub (areas where shrubs have > 30% cover)
____ Forested (areas where trees have > 30% cover)

If the unit has a forested class check if:
____ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon.

Add the number of vegetation types that qualify. If you have:
4 structures or more .....points = 4
2 structures .....points = 1
3 structures .....points = 2
1 structure.....points = 0

Map of Cowardin vegetation classes

Figure ___

0

H 1.2 Hydroperiods *(see p.73)*:

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).

____ Permanently flooded or inundated
__X__ Seasonally flooded or inundated
____ Occasionally flooded or inundated
__X__ Saturated only
____ Permanently flowing stream or river in, or adjacent to, the wetland
____ Seasonally flowing stream in, or adjacent to, the wetland
____ **Lake-fringe wetland .....= 2 points**
____ **Freshwater tidal wetland.....= 2 points**

4 or more types present points = 3
3 or more types present ..... points = 2
2 types present ..... points = 1
1 type present..... points = 0

Map of hydroperiods

Figure ___

2

H 1.3 Richness of Plant Species *(see p. 75)*:

Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.

List species below if you want to:

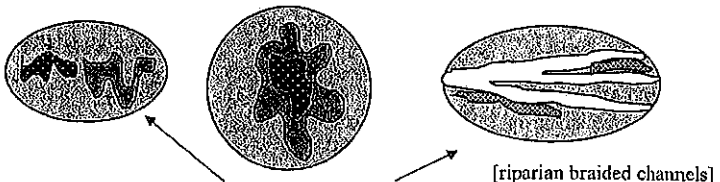
If you counted:
> 19 species.....points = 2
5 – 19 species .....points = 1
< 5 species.....points = 0

0

H 1.4 Interspersion of Habitats *(see p. 76)*:

Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

None = 0 points Low = 1 point Moderate = 2 points



High = 3 points

Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".

Use map of Cowardin classes.

Figure ___

1

H 1.5 Special Habitat Features *(see p. 77)*:

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

__X__ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long)
____ Standing snags (diameter at the bottom > 4 inches) in the wetland
____ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m)
____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
____ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
__X__ Invasive plants cover less than 25% of the wetland area in each stratum of plants
NOTE: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1 TOTAL Score – potential for providing habitat *Add the points in the column above* **5**

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(Only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use).. ..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ Heavy grazing in buffer..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0** ____ Buffer does not meet any of the criteria above..... **points = 1** **Arial photo showing buffers**	**Figure ___** **5**
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* **YES = 4 points** (go to H 2.3) **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? **YES = 2 points** (go to H 2.3) **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? **NO** = 0 points	2

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife *(full descriptions in WDFW PHS report p. 152)*. ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important *(full descriptions in WDFW PHS report p. 158)*. ____ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie *(full descriptions in WDFW PHS report p. 161)*. ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed..... points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile..... points = 3 • There is at least 1 wetland within 1/2 mile..... points = 2 • There are no wetlands within 1/2 mile ..... points = 0	5
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	12
	TOTAL for H 1 from page 8	5
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	17

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Types. Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. **YES** = Go to SC 1.1 **NO** ____	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES** = Category I **NO** = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? **YES** = Category I **NO** = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D ✓ or accessed from WNHP/DNR web site ____ **YES** ____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 **NO** ✓ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? **YES** = Category 1 **NO** ____ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? **YES** = go to question 3 **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? **YES** = go to question 3 **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? **YES** = Is a bog for purpose of rating **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? **YES** = Category I **NO** = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. **YES** = Category I **NO** = ____ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* **YES** = Go to SC 5.1 **NO** ____ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) **YES** = Category I **NO** = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES** = Go to SC 6.1 **NO** ____ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? **YES** = Category II **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES** = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	

Comments:

Wetland name or number: K- Bremerton

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland K - onsite Date of site visit: August 2011

Rated by: T. SMITH Trained by Ecology? Yes____ No____ Date of training:____

SEC: 22 TWNSHP: 23N RNGE: 1 Is S/T/R in Appendix D? No

Map of wetland unit: Figure Appendix A Estimated size 653 sf

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I____ II____ III__X__ IV____

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	12
Score for Hydrologic Functions	4
Score for Habitat Functions	16
TOTAL Score for Functions	32

Category based on SPECIAL CHARACTERISTCS of Wetland I____ II____ Does not apply __X__

Final Category (choose the "highest" category from above") 3

Summary of basic information about the wetland unit.

Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	

Depressional	X
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

SP1.	*Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2.	*Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Western Washington

If the hydrologic regime described in each question does not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic regime in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

Two classes within the wetland unit being rated	Use these forms for the rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	Score (circle one) or box
D 1	**Does the wetland have the potential to improve water quality?**	
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) .....points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet.....points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*).....points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___ 3**
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area .....points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area .....points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area .....points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area .....points = 0 **Map of Cowardin vegetation classes**	**Figure ___ 5**
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland.....points = 4 • Area seasonally ponded is > 1/4 total area of wetland.....points = 2 • Area seasonally ponded is < 1/4 total area of wetland.....points = 0 **Map of Hydroperiods**	**Figure ___ 4**
	Total for D 1 *Add the points in the boxes above*	12
D 2	**Does the wetland have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other STORMWATER DISCHARGES FROM ROADWAY SURFACE **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 44)* Multiplier 1
◆	**TOTAL – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	12
	HYDROLOGIC FUNCTIONS - Indicators that wetland unit functions to reduce flooding and stream erosion	Score (circle one) or box
D 3	**Does the wetland have the potential to reduce flooding and erosion?**	
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) .....points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet.....points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*.....points = 0	4
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet.....points = 7 • The wetland is a "headwater" wetland .....points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet .....points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet .....points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water .points = 1 • Marks of ponding less than 0.5 ft.....points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit.....points = 5 • The area of the basin is 10 to 100 times the area of the unit.....points = 3 • The area of the basin is more than 100 times the area of the unit .....points = 0 • Entire unit is in the FLATS class.....points = 5	0
	Total for D 3 *Add the points in the boxes above*	4

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 49)* Multiplier <u>1</u>
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	4

Comments:

Pages 5-7 do not apply to wetland ∴ removed

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat (only 1 score per box)

H 1 Does the wetland have the potential to provide habitat for many species?

H 1.1 Vegetation structure *(see P. 72)*:

Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.

___ Aquatic Bed
X Emergent plants
___ Scrub/shrub (areas where shrubs have > 30% cover)
___ Forested (areas where trees have > 30% cover)

If the unit has a forested class check if:

___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon.

Add the number of vegetation types that qualify. If you have: **Map of Cowardin vegetation classes**
4 structures or more .....points = 4 — 3 structures .....points = 2
2 structures .....points = 1 — 1 structure.....points = 0

Figure ___

0

H 1.2 Hydroperiods *(see p.73)*:

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).

___ Permanently flooded or inundated — 4 or more types present points = 3
X Seasonally flooded or inundated — 3 or more types present ..... points = 2
___ Occasionally flooded or inundated — 2 types present ..... points = 1
X Saturated only — 1 type present..... points = 0
___ Permanently flowing stream or river in, or adjacent to, the wetland
___ Seasonally flowing stream in, or adjacent to, the wetland
___ **Lake-fringe wetland .....= 2 points**
___ **Freshwater tidal wetland.....= 2 points**

Map of hydroperiods

Figure ___

2

H 1.3 Richness of Plant Species *(see p. 75)*:

Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.

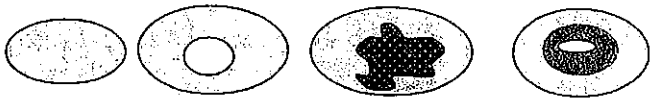
If you counted: > 19 species.....points = 2
5 – 19 species .....points = 1
< 5 species.....points = 0

List species below if you want to:

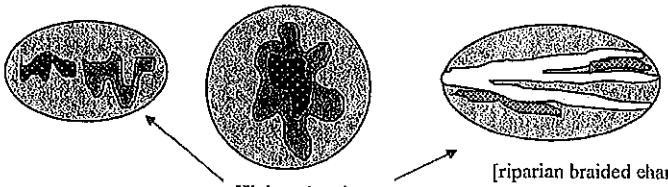
0

H 1.4 Interspersion of Habitats *(see p. 76)*:

Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [riparian braided channels]

Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".

Use map of Cowardin classes.

Figure ___

0

H 1.5 Special Habitat Features *(see p. 77)*:

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

X Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long)
___ Standing snags (diameter at the bottom > 4 inches) in the wetland
___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m)
___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1 TOTAL Score – potential for providing habitat — *Add the points in the column above* — **4**

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(Only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use).. ..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ Heavy grazing in buffer..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0** ____ Buffer does not meet any of the criteria above..... **points = 1** **Arial photo showing buffers**	**Figure ___** **5**
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* **YES = 4 points** (go to H 2.3) **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? **YES = 2 points** (go to H 2.3) **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? **NO** = 0 points	2

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife *(full descriptions in WDFW PHS report p. 152)*. ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important *(full descriptions in WDFW PHS report p. 158)*. _ __ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie *(full descriptions in WDFW PHS report p. 161)*. ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed..... points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile..... points = 3 • There is at least 1 wetland within 1/2 mile..... points = 2 • There are no wetlands within 1/2 mile ..... points = 0	5
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	12
	TOTAL for H 1 from page 8	4
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	16

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type. Check if any criteria in that apply to the wetland. Circle the Category when the appropriate criteria are met.	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. **YES** = Go to SC 1.1 **NO** ____	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES** = Category I **NO** = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? **YES** = Category I **NO** = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D ✓ or accessed from WNHP/DNR web site ____ **YES** ____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 **NO** ✓ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? **YES** = Category 1 **NO** ✓ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? **YES** = go to question 3 **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? **YES** = go to question 3 **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? **YES** = Is a bog for purpose of rating **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? **YES** = Category I **NO** = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. **YES** = Category I **(NO)** = ____ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* **YES** = Go to SC 5.1 **(NO)** ____ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) **YES** = Category I **NO** = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES** = Go to SC 6.1 **(NO)** ____ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? **YES** = Category II **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES** = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	

Comments:

Wetland name or number: L-Bremerton

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland L - onsite Date of site visit: August 2011

Rated by: T. SMITH Trained by Ecology? Yes____ No____ Date of training:____

SEC: 22 TWNSHP: 23N RNGE: 1 Is S/T/R in Appendix D? No

Map of wetland unit: Figure Appendix A Estimated size 5,205 sf

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I____ II____ III__X__ IV____

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	14
Score for Habitat Functions	17
TOTAL Score for Functions	41

Category based on SPECIAL CHARACTERISTCS of Wetland I____ II____ Does not apply __X__

Final Category (choose the "highest" category from above") 3

Summary of basic information about the wetland unit.

Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

SP1.	*Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2.	*Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Western Washington

[illegible] in each question to not apply to the entire unit being rated you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe (NO) **– Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   (NO) – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   (NO) – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   (NO) – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   (NO) – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 (YES) – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   (No) – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

[illegible]	[illegible]
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	Circle appropriate box (see p. 39)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) .....points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet.....points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*).....points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___ 3**
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	4
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area .....points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area .....points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area .....points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area .....points = 0 **Map of Cowardin vegetation classes**	**Figure ___ 3**
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland .....points = 4 • Area seasonally ponded is > 1/4 total area of wetland .....points = 2 • Area seasonally ponded is < 1/4 total area of wetland .....points = 0 **Map of Hydroperiods**	**Figure ___ 4**
	Total for D 1 *Add the points in the boxes above*	14
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other <u>STORMWATER DISCHARGES FROM ROADWAY SURFACE</u> **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 44)* Multiplier <u>1</u>
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	14
	HYDROLOGIC FUNCTIONS - Indicators that wetland unit functions to reduce flooding and stream degradation	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) .....points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet.....points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*.....points = 0	4
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet.....points = 7 • The wetland is a "headwater" wetland .....points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet .....points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet .....points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water .points = 1 • Marks of ponding less than 0.5 ft.....points = 0	3
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit.....points = 5 • The area of the basin is 10 to 100 times the area of the unit.....points = 3 • The area of the basin is more than 100 times the area of the unit .....points = 0 • Entire unit is in the FLATS class.....points = 5	3
	Total for D 3 *Add the points in the boxes above*	10

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 49)* Multiplier 1
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	10

Comments:

pages 5-7 do not apply to the wetla
∴ removed

HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat. (Only 1 score per box)

H 1 Does the wetland have the potential to provide habitat for many species?

H 1.1 Vegetation structure *(see P. 72)*:

Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.

___ Aquatic Bed
X Emergent plants
X Scrub/shrub (areas where shrubs have > 30% cover)
___ Forested (areas where trees have > 30% cover)

If the unit has a forested class check if:

___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon.

Add the number of vegetation types that qualify. If you have:
4 structures or more .....points = 4
2 structures .....points = 1

Map of Cowardin vegetation classes
3 structures .....points = 2
1 structure.....points = 0

Figure ___ **1**

H 1.2 Hydroperiods *(see p.73)*:

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).

___ Permanently flooded or inundated
X Seasonally flooded or inundated
___ Occasionally flooded or inundated
X Saturated only
___ Permanently flowing stream or river in, or adjacent to, the wetland
___ Seasonally flowing stream in, or adjacent to, the wetland
___ **Lake-fringe wetland .....= 2 points**
___ **Freshwater tidal wetland.....= 2 points**

4 or more types present points = 3
3 or more types present ..... points = 2
2 types present ..... points = 1
1 type present..... points = 0

Map of hydroperiods

Figure ___ **2**

H 1.3 Richness of Plant Species *(see p. 75)*:

Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.

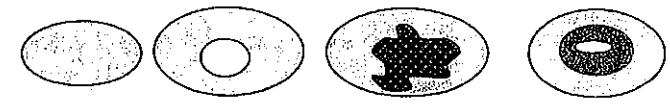
List species below if you want to:

If you counted:
> 19 species.....points = 2
5 – 19 species .....points = 1
< 5 species.....points = 0

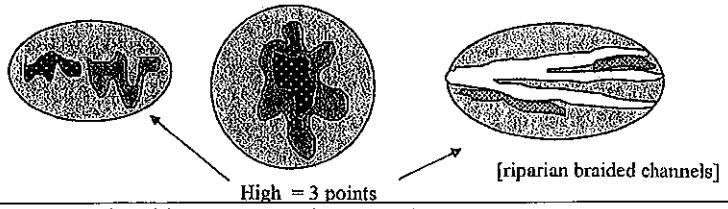
0

H 1.4 Interspersion of Habitats *(see p. 76)*:

Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [riparian braided channels]

Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".

Use map of Cowardin classes.

Figure ___ **1**

H 1.5 Special Habitat Features *(see p. 77)*:

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

___ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long)
___ Standing snags (diameter at the bottom > 4 inches) in the wetland
___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m)
___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1 TOTAL Score – potential for providing habitat *Add the points in the column above* **5**

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use).. ..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ Heavy grazing in buffer..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0** ____ Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ____** **5**
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* **YES = 4 points** (go to H 2.3) **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? **YES = 2 points** (go to H 2.3) **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? **NO** = 0 points	2

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*

Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?
NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).

____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife *(full descriptions in WDFW PHS report p. 152)*.

____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important *(full descriptions in WDFW PHS report p. 158)*.

_ __ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie *(full descriptions in WDFW PHS report p. 161)*.

____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*

____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats = **4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

0

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed ..... points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3
- There is at least 1 wetland within 1/2 mile ..... points = 2
- There are no wetlands within 1/2 mile ..... points = 0

5

H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4* **12**

TOTAL for H 1 from page 8 **5**

◆ **Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1*** **17**

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type. Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. **YES** = Go to SC 1.1 **NO** ____	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES** = Category I **NO** = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? **YES** = Category I **NO** = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D ✓ or accessed from WNHP/DNR web site ____ **YES** ____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 **NO** ✓ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? **YES** = Category 1 **NO** ____ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? **YES** = go to question 3 **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? **YES** = go to question 3 **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? **YES** = Is a bog for purpose of rating **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? **YES** = Category I **NO** = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests:** (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests:** (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. **YES** = Category I **NO** = ____ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* **YES** = Go to SC 5.1 **NO** ____ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) **YES** = Category I **NO** = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES** = Go to SC 6.1 **NO** ____ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? **YES** = Category II **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES** = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	

Comments:

Wetland name or number: M-Bremerton

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland M - onsite Date of site visit: August 2011

Rated by: T. SMITH Trained by Ecology? Yes____ No_____ Date of training:_____

SEC: 22 TWNSHP: 23N RNGE: 1 Is S/T/R in Appendix D? No

Map of wetland unit: Figure Appendix A Estimated size 924 sf

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I_____ II_____ III__X__ IV_____

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	7
Score for Habitat Functions	18
TOTAL Score for Functions	35

Category based on SPECIAL CHARACTERISTCS of Wetland I_____ II_____ Does not apply ____X___

Final Category (choose the "highest" category from above") **3**

Summary of basic information about the wetland unit.

Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

SP1.	*Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2.	*Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Western Washington

If the hydrologic regime listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe (NO) – **Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   (NO) – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   (NO) – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   (NO) – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   (NO) – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 (YES) – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   (No) – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

[illegible]	[illegible]
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

	WATER QUALITY FUNCTIONS Indicators that wetland functions to improve water quality	(circle one) (see p. 39)
D 1	**Does the wetland have the potential to improve water quality?**	
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) .....points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet.....points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*).....points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___ 3**
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area .....points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area .....points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area .....points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area .....points = 0 **Map of Cowardin vegetation classes**	**Figure ___ 5**
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland.....points = 4 • Area seasonally ponded is > 1/4 total area of wetland.....points = 2 • Area seasonally ponded is < 1/4 total area of wetland.....points = 0 **Map of Hydroperiods**	**Figure ___ 2**
	Total for D 1 *Add the points in the boxes above*	10
D 2	**Does the wetland have the opportunity to improve water quality?** *(see p. 44)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other STORMWATER DISCHARGES FROM ROADWAY SURFACE **YES** multiplier is 2 **NO** multiplier is 1	Multiplier 1
◆	**TOTAL – Water Quality Functions** Multiply the score from D1 by D2; then *add score to table on p. 1*	10
	HYDROLOGIC FUNCTIONS Indicators that wetland functions to reduce flooding and stream degradation	(circle one) (see p. 39)
D 3	**Does the wetland have the potential to reduce floodiug and erosion?**	
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) .....points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet.....points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*.....points = 0	4
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet.....points = 7 • The wetland is a "headwater" wetland .....points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet .....points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet .....points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water .points = 1 • Marks of ponding less than 0.5 ft.....points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit.....points = 5 • The area of the basin is 10 to 100 times the area of the unit.....points = 3 • The area of the basin is more than 100 times the area of the unit .....points = 0 • Entire unit is in the FLATS class.....points = 5	3
	Total for D 3 *Add the points in the boxes above*	7

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 49)* Multiplier 1
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	7

Comments:

Pages 5-7 do not apply to wetland ∴ removed

HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat (only 1 score per box)

H 1 Does the wetland have the potential to provide habitat for many species?

H 1.1 Vegetation structure *(see P. 72)*:

Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.

___ Aquatic Bed
X Emergent plants
X Scrub/shrub (areas where shrubs have > 30% cover)
___ Forested (areas where trees have > 30% cover)

If the unit has a forested class check if:

___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon.

Add the number of vegetation types that qualify. If you have:
4 structures or more .....points = 4
2 structures .....points = 1

Map of Cowardin vegetation classes
3 structures .....points = 2
1 structure.....points = 0

Figure ___

1

H 1.2 Hydroperiods *(see p.73)*:

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).

___ Permanently flooded or inundated
X Seasonally flooded or inundated
___ Occasionally flooded or inundated
X Saturated only
___ Permanently flowing stream or river in, or adjacent to, the wetland
___ Seasonally flowing stream in, or adjacent to, the wetland
___ **Lake-fringe wetland .....= 2 points**
___ **Freshwater tidal wetland.....= 2 points**

4 or more types present points = 3
3 or more types present ..... points = 2
2 types present ..... points = 1
1 type present..... points = 0

Map of hydroperiods

Figure ___

2

H 1.3 Richness of Plant Species *(see p. 75)*:

Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.

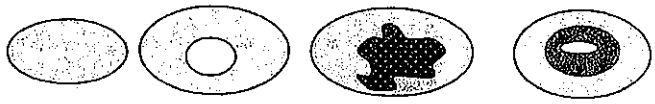
List species below if you want to:

If you counted:
> 19 species.....points = 2
5 – 19 species .....points = 1
< 5 species.....points = 0

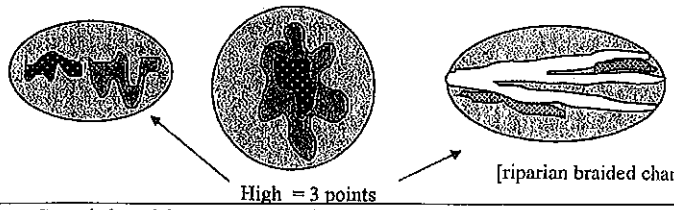
0

H 1.4 Interspersion of Habitats *(see p. 76)*:

Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [riparian braided channels]

Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".

Use map of Cowardin classes.

Figure ___

1

H 1.5 Special Habitat Features *(see p. 77)*:

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

X Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long)
___ Standing snags (diameter at the bottom > 4 inches) in the wetland
___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m)
___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
X Invasive plants cover less than 25% of the wetland area in each stratum of plants
NOTE: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1 TOTAL Score – potential for providing habitat *Add the points in the column above* **6**

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(Only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use).. ..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ Heavy grazing in buffer..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0** ____ Buffer does not meet any of the criteria above..... **points = 1** **Arial photo showing buffers**	**Figure ___** **5**
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* **YES = 4 points** (go to H 2.3) **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? **YES = 2 points** (go to H 2.3) **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? **NO** = 0 points	2

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife *(full descriptions in WDFW PHS report p. 152)*. ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important *(full descriptions in WDFW PHS report p. 158)*. ____ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie *(full descriptions in WDFW PHS report p. 161)*. ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed ..... points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3 • There is at least 1 wetland within 1/2 mile ..... points = 2 • There are no wetlands within 1/2 mile ..... points = 0	5
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	12
	TOTAL for H 1 from page 8	6
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	18

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type. Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. **YES** = Go to SC 1.1 **NO** ____	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES** = Category I **NO** = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? **YES** = Category I **NO** = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D ____ or accessed from WNHP/DNR web site ____ **YES** ____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 **NO** ____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? **YES** = Category 1 **NO** ____ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? **YES** = go to question 3 **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? **YES** = go to question 3 **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? **YES** = Is a bog for purpose of rating **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? **YES** = Category I **NO** = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. **YES** = Category I **NO** = ____ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* **YES** = Go to SC 5.1 **NO** ____ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) **YES** = Category I **NO** = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES** = Go to SC 6.1 **NO** ____ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? **YES** = Category II **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES** = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	

Comments:

Wetland name or number: N-Bremerton

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland N - onsite Date of site visit: August 2011

Rated by: T. SMITH Trained by Ecology? Yes_____ No_____ Date of training:_____

SEC: 22 TWNSHP: 23N RNGE: 1 Is S/T/R in Appendix D? No

Map of wetland unit: Figure Appendix A Estimated size 7,002 sf

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I_____ II_____ III__X__ IV_____

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	12
Score for Hydrologic Functions	10
Score for Habitat Functions	22
TOTAL Score for Functions	44

Category based on SPECIAL CHARACTERISTCS of Wetland I_____ II_____ Does not apply __X__

Final Category (choose the "highest" category from above") 3

Summary of basic information about the wetland unit.

Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

SP1.	*Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2.	*Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Western Washington

If the hydrologic characteristics in question 1 do not apply to the entire unit being rated, you probably have more than one wetland class. In this case, identify which hydrologic characteristics in questions 1-7 apply and go to question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe (NO) – **Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   (NO) – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____At least 30% of the open water area is deeper than 6.6 (2 m)?
   (NO) – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____The wetland is on a slope *(slope can be very gradual)*.
   _____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   (NO) – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding.*.
   (NO) – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 (YES) – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   (No) – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

Combination of classes that occur in the unit	Class to use in the rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

	WATER QUALITY FUNCTIONS - Indicators that the wetland functions to improve water quality	Circle one per row
D 1	**Does the wetland have the potential to improve water quality?**	
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) .....points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet.....points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*).....points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___ 3**
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area .....points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area .....points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area .....points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area .....points = 0 **Map of Cowardin vegetation classes**	**Figure ___ 5**
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland .....points = 4 • Area seasonally ponded is > 1/4 total area of wetland .....points = 2 • Area seasonally ponded is < 1/4 total area of wetland .....points = 0 **Map of Hydroperiods**	**Figure ___ 4**
	Total for D 1 *Add the points in the boxes above*	12
D 2	**Does the wetland have the opportunity to improve water quality?** *(see p. 44)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other STORMWATER DISCHARGES FROM ROADWAY SURFACE **YES** multiplier is 2 **NO** multiplier is 1	Multiplier 1
◆	**TOTAL – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	12
	HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion	
D 3	**Does the wetland have the potential to reduce flooding and erosion?**	
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) .....points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet.....points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*.....points = 0	4
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet.....points = 7 • The wetland is a "headwater" wetland .....points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet .....points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet .....points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water .points = 1 • Marks of ponding less than 0.5 ft.....points = 0	3
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit.....points = 5 • The area of the basin is 10 to 100 times the area of the unit.....points = 3 • The area of the basin is more than 100 times the area of the unit .....points = 0 • Entire unit is in the FLATS class.....points = 5	3
	Total for D 3 *Add the points in the boxes above*	10

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 49)* Multiplier 1
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	7

Comments:

Pages 5-7 do not apply to wetland ∴ removed

H. WETLAND FUNCTIONS – Indicators that wetland functions to provide important habitat (Only 1 score per box)

H 1 Does the wetland have the potential to provide habitat for many species?

H 1.1 Vegetation structure *(see P. 72)*:

Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.

___ Aquatic Bed
X Emergent plants
X Scrub/shrub (areas where shrubs have > 30% cover)
X Forested (areas where trees have > 30% cover)

If the unit has a forested class check if:

___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon.

Add the number of vegetation types that qualify. If you have:
4 structures or more .....points = 4
2 structures .....points = 1

Map of Cowardin vegetation classes
3 structures .....points = 2
1 structure.....points = 0

Figure ___

2

H 1.2 Hydroperiods *(see p.73)*:

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).

___ Permanently flooded or inundated
X Seasonally flooded or inundated
X Occasionally flooded or inundated
X Saturated only
___ Permanently flowing stream or river in, or adjacent to, the wetland
___ Seasonally flowing stream in, or adjacent to, the wetland
___ **Lake-fringe wetland .....= 2 points**
___ **Freshwater tidal wetland.....= 2 points**

4 or more types present points = 3
3 or more types present ..... points = 2
2 types present ..... points = 1
1 type present..... points = 0

Map of hydroperiods

Figure ___

2

H 1.3 Richness of Plant Species *(see p. 75)*:

Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.

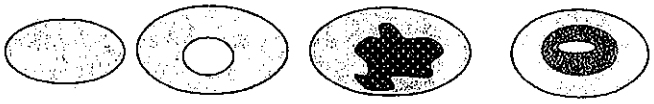
List species below if you want to:

If you counted:
> 19 species.....points = 2
5 – 19 species .....points = 1
< 5 species.....points = 0

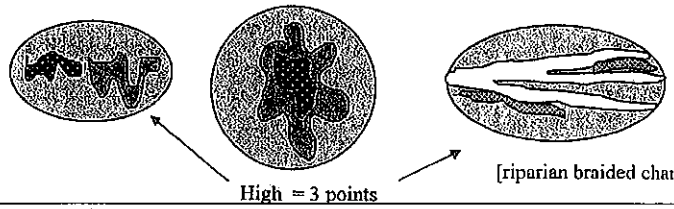
1

H 1.4 Interspersion of Habitats *(see p. 76)*:

Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points

Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".

Use map of Cowardin classes.

Figure ___

3

H 1.5 Special Habitat Features *(see p. 77)*:

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

X Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long)
___ Standing snags (diameter at the bottom > 4 inches) in the wetland
___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m)
___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
X Invasive plants cover less than 25% of the wetland area in each stratum of plants
NOTE: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1 TOTAL Score – potential for providing habitat *Add the points in the column above* 10

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use).. ..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ Heavy grazing in buffer..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0** ____ Buffer does not meet any of the criteria above..... **points = 1** **Arial photo showing buffers**	**Figure ___** **5**
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* **YES = 4 points** (go to H 2.3) **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? **YES = 2 points** (go to H 2.3) **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? **NO** = 0 points	2

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*

Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?

NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).

____ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife *(full descriptions in WDFW PHS report p. 152)*.

____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important *(full descriptions in WDFW PHS report p. 158)*.

_ __ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie *(full descriptions in WDFW PHS report p. 161)*.

____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

____ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*

____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats = **4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

0

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed ..... points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3
- There is at least 1 wetland within 1/2 mile ..... points = 2
- There are no wetlands within 1/2 mile ..... points = 0

5

	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	12
	TOTAL for H 1 from page 8	10
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	22

Comments:

Wetland name or number: N-Bremerton

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type. Check if any criteria apply to the wetland. Circle the Category when the appropriate criteria are met.	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. **YES** = Go to SC 1.1 **NO** ____	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES** = Category I **NO** = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? **YES** = Category I **NO** = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D ____ or accessed from WNHP/DNR web site ____ **YES** ____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 **NO** ____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? **YES** = Category 1 **NO** ____ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? **YES** = go to question 3 **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? **YES** = go to question 3 **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground-level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? **YES** = Is a bog for purpose of rating **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? **YES** = Category I **NO** = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests:** (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests:** (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. **YES** = Category I **NO** = ____ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* **YES** = Go to SC 5.1 **NO** ____ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) **YES** = Category I **NO** = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES** = Go to SC 6.1 **NO** ____ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? **YES** = Category II **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES** = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	

Comments:

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland O - onsite Date of site visit: August 2011

Rated by: T. SMITH Trained by Ecology? Yes____ No_____ Date of training:__________

SEC: 22 TWNSHP: 23N RNGE: 1 Is S/T/R in Appendix D? No

Map of wetland unit: Figure Appendix A Estimated size 5,723 sf

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I________ II________ III___X___ IV________

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	7
Score for Habitat Functions	19
TOTAL Score for Functions	36

Category based on SPECIAL CHARACTERISTCS of Wetland I________ II________ Does not apply ___X___

Final Category (choose the "highest" category from above) | 3 |

Summary of basic information about the wetland unit.

Wetland Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	

Wetland HGM Class used for Rating	
Depressional	X
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe (NO) – **Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   (NO) – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____At least 30% of the open water area is deeper than 6.6 (2 m)?
   (NO) – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____The wetland is on a slope *(slope can be very gradual)*.
   _____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   (NO) – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding.*.
   (NO) – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 (YES) – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   (No) – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

Combination of classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	(only 1 score per box) (see p. 43)
D 1	**Does the wetland have the potential to improve water quality?**	
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) .....points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet.....points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*).....points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___ 3**
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area .....points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area .....points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area .....points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area .....points = 0 **Map of Cowardin vegetation classes**	**Figure ___ 5**
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland .....points = 4 • Area seasonally ponded is > 1/4 total area of wetland .....points = 2 • Area seasonally ponded is < 1/4 total area of wetland .....points = 0 **Map of Hydroperiods**	**Figure ___ 2**
	Total for D 1 *Add the points in the boxes above*	10
D 2	**Does the wetland have the opportunity to improve water quality?** *(see p. 44)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other STORMWATER DISCHARGES FROM ROADWAY SURFACE **YES** multiplier is 2 **NO** multiplier is 1	Multiplier 1
◆	**TOTAL – Water Quality Functions** Multiply the score from D1 by D2; then *add score to table on p. 1*	10
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	
D 3	**Does the wetland have the potential to reduce flooding and erosion?** *(see p. 46)*	
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) .....points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet.....points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*.....points = 0	4
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet.....points = 7 • The wetland is a "headwater" wetland .....points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet .....points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet .....points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water .points = 1 • Marks of ponding less than 0.5 ft.....points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit.....points = 5 • The area of the basin is 10 to 100 times the area of the unit.....points = 3 • The area of the basin is more than 100 times the area of the unit .....points = 0 • Entire unit is in the FLATS class.....points = 5	3
	Total for D 3 *Add the points in the boxes above*	7

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 49)* Multiplier 1
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	7

Comments:

Pages 5-7 do not apply to wetland ∴ removed

FUNCTIONS Indicators that wetland functions to provide important habitat (only 1 score per box)

H 1 Does the wetland have the potential to provide habitat for many species?

H 1.1 Vegetation structure *(see P. 72)*:

Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.

___ Aquatic Bed
X Emergent plants
X Scrub/shrub (areas where shrubs have > 30% cover)
___ Forested (areas where trees have > 30% cover)

If the unit has a forested class check if:
___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon.

Add the number of vegetation types that qualify. If you have:
4 structures or more .....points = 4
2 structures .....points = 1
Map of Cowardin vegetation classes
3 structures .....points = 2
1 structure.....points = 0

Figure ___
2

H 1.2 Hydroperiods *(see p.73)*:

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).

___ Permanently flooded or inundated
___ Seasonally flooded or inundated
X Occasionally flooded or inundated
X Saturated only
___ Permanently flowing stream or river in, or adjacent to, the wetland
___ Seasonally flowing stream in, or adjacent to, the wetland
___ **Lake-fringe wetland .....= 2 points**
___ **Freshwater tidal wetland.....= 2 points**

4 or more types present points = 3
3 or more types present ..... points = 2
2 types present ..... points = 1
1 type present..... points = 0
Map of hydroperiods

Figure ___
1

H 1.3 Richness of Plant Species *(see p. 75)*:

Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.

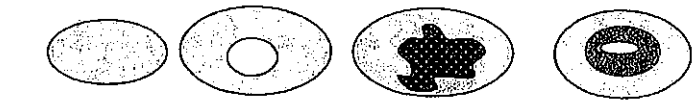
List species below if you want to:

If you counted:
> 19 species.....points = 2
5 – 19 species .....points = 1
< 5 species.....points = 0

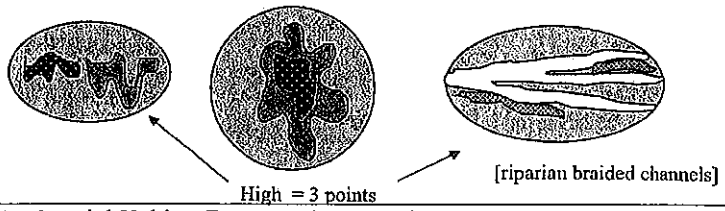
1

H 1.4 Interspersion of Habitats *(see p. 76)*:

Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [riparian braided channels]

Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".

Use map of Cowardin classes.

Figure ___
1

H 1.5 Special Habitat Features *(see p. 77)*:

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

X Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long)
___ Standing snags (diameter at the bottom > 4 inches) in the wetland
___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m)
___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
X Invasive plants cover less than 25% of the wetland area in each stratum of plants
NOTE: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1 TOTAL Score – potential for providing habitat *Add the points in the column above* 7

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	Circle appropriate points
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use).. ..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ Heavy grazing in buffer..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0** ____ Buffer does not meet any of the criteria above..... **points = 1** **Arial photo showing buffers**	**Figure ___** **5**
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* **YES = 4 points** (go to H 2.3) **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? **YES = 2 points** (go to H 2.3) **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? **NO** = 0 points	2

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife *(full descriptions in WDFW PHS report p. 152)*. ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important *(full descriptions in WDFW PHS report p. 158)*. ____ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie *(full descriptions in WDFW PHS report p. 161)*. ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed ..... points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3 • There is at least 1 wetland within 1/2 mile ..... points = 2 • There are no wetlands within 1/2 mile ..... points = 0	5
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	12
	TOTAL for H 1 from page 8	7
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	19

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type. Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. **YES** = Go to SC 1.1 **NO** ____	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES** = Category I **NO** = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? **YES** = Category I **NO** = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D ____ or accessed from WNHP/DNR web site ____ **YES** ____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 **NO** ____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? **YES** = Category 1 **NO** ____ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? **YES** = go to question 3 **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? **YES** = go to question 3 **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? **YES** = Is a bog for purpose of rating **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? **YES** = Category I **NO** = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. **YES** = Category I **NO** = ____ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* **YES** = Go to SC 5.1 **NO** ____ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) **YES** = Category I **NO** = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES** = Go to SC 6.1 **NO** ____ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? **YES** = Category II **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES** = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	

Comments:

Wetland name or number: P-Bremerton

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland P - onsite Date of site visit: August 2011

Rated by: T. SMITH Trained by Ecology? Yes_____ No_____ Date of training:_____

SEC: 22 TWNSHP: 23N RNGE: 1 Is S/T/R in Appendix D? No

Map of wetland unit: Figure Appendix A Estimated size 3,830 sf

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I_____ II_____ III__X__ IV_____

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	7
Score for Habitat Functions	18
TOTAL Score for Functions	35

Category based on SPECIAL CHARACTERISTCS of Wetland I_____ II_____ Does not apply __X__

Final Category (choose the "highest" category from above") 3

Summary of basic information about the wetland unit.

Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	

Depressional	X
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

SP1.	*Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2.	*Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Western Washington

[redacted]

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

[redacted]	[redacted]
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D 1	**Does the wetland have the potential to improve water quality?**	
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) .....points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet.....points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*).....points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___ 3**
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area .....points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area .....points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area .....points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area .....points = 0 **Map of Cowardin vegetation classes**	**Figure ___ 5**
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland.....points = 4 • Area seasonally ponded is > 1/4 total area of wetland.....points = 2 • Area seasonally ponded is < 1/4 total area of wetland.....points = 0 **Map of Hydroperiods**	**Figure ___ 2**
	Total for D 1 *Add the points in the boxes above*	10
D 2	**Does the wetland have the opportunity to improve water quality?** *(see p. 44)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other STORMWATER DISCHARGES FROM ROADWAY SURFACE **YES** multiplier is 2 **NO** multiplier is 1	Multiplier 1
◆	**TOTAL – Water Quality Functions** Multiply the score from D1 by D2; then *add score to table on p. 1*	10
	HYDROLOGIC FUNCTIONS Indicators that wetland functions to reduce flooding and stream erosion	
D 3	**Does the wetland have the potential to reduce flooding and erosion?**	
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) .....points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet.....points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*.....points = 0	4
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet.....points = 7 • The wetland is a "headwater" wetland .....points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet .....points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet .....points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water .points = 1 • Marks of ponding less than 0.5 ft.....points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit.....points = 5 • The area of the basin is 10 to 100 times the area of the unit.....points = 3 • The area of the basin is more than 100 times the area of the unit .....points = 0 • Entire unit is in the FLATS class.....points = 5	3
	Total for D 3 *Add the points in the boxes above*	7

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 49)* Multiplier 1
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	7

Comments:

pages 5-7 do not apply to wetland ∴ removed

WHAT FUNCTIONS indicates that wetland functions to provide important habitat. (only 1 score per unit)

H 1 Does the wetland have the potential to provide habitat for many species?

H 1.1 Vegetation structure *(see P. 72)*:

Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.

___ Aquatic Bed
X Emergent plants
X Scrub/shrub (areas where shrubs have > 30% cover)
___ Forested (areas where trees have > 30% cover)

If the unit has a forested class check if:
___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon.

Add the number of vegetation types that qualify. If you have:
4 structures or more .....points = 4
2 structures .....points = 1
Map of Cowardin vegetation classes
3 structures .....points = 2
1 structure.....points = 0

Figure ___
1

H 1.2 Hydroperiods *(see p.73)*:

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).

___ Permanently flooded or inundated
___ Seasonally flooded or inundated
X Occasionally flooded or inundated
X Saturated only
___ Permanently flowing stream or river in, or adjacent to, the wetland
___ Seasonally flowing stream in, or adjacent to, the wetland
___ **Lake-fringe wetland .....= 2 points**
___ **Freshwater tidal wetland.....= 2 points**

4 or more types present points = 3
3 or more types present ..... points = 2
2 types present ..... points = 1
1 type present..... points = 0

Map of hydroperiods

Figure ___
1

H 1.3 Richness of Plant Species *(see p. 75)*:

Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.

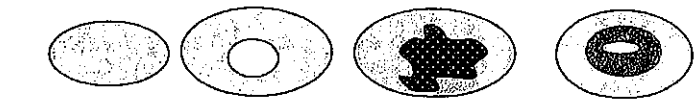
List species below if you want to:

If you counted:
> 19 species.....points = 2
5 – 19 species .....points = 1
< 5 species.....points = 0

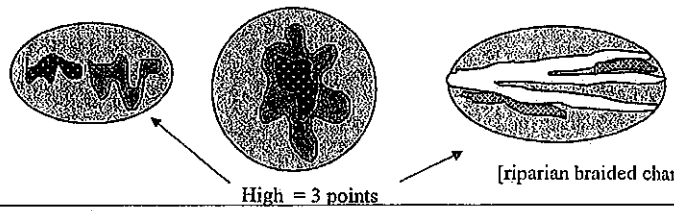
1

H 1.4 Interspersion of Habitats *(see p. 76)*:

Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [riparian braided channels]

Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".

Use map of Cowardin classes.

Figure ___
1

H 1.5 Special Habitat Features *(see p. 77)*:

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

X Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long)
___ Standing snags (diameter at the bottom > 4 inches) in the wetland
___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m)
___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
X Invasive plants cover less than 25% of the wetland area in each stratum of plants
NOTE: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1 TOTAL Score – potential for providing habitat *Add the points in the column above* **6**

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use).. ..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ Heavy grazing in buffer..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0** ____ Buffer does not meet any of the criteria above..... **points = 1** **Arial photo showing buffers**	**Figure ___** 5
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* **YES = 4 points** (go to H 2.3) **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? **YES = 2 points** (go to H 2.3) **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? **NO** = 0 points	2

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife *(full descriptions in WDFW PHS report p. 152)*. ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important *(full descriptions in WDFW PHS report p. 158)*. _ __ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie *(full descriptions in WDFW PHS report p. 161)*. ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed ..... points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3 • There is at least 1 wetland within 1/2 mile ..... points = 2 • There are no wetlands within 1/2 mile ..... points = 0	5
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	12
	TOTAL for H 1 from page 8	6
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	18

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type. *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ___ The dominant water regime is tidal, ___ Vegetated, and ___ With a salinity greater than 0.5 ppt. **YES** = Go to SC 1.1 **NO**	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES** = Category I **NO** = go to SC 1.2	**Cat. I**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? **YES** = Category I **NO** = Category II ___ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ___ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ___ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D ✓ or accessed from WNHP/DNR web site ___ **YES** ___ Contact WNHP/DNR (see p. 79) and go to SC 2.2 **NO** ✓ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? **YES** = Category 1 **NO** ✓ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? **YES** = go to question 3 **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? **YES** = go to question 3 **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? **YES** = Is a bog for purpose of rating **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? **YES** = Category I **NO** = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. **YES** = Category I **NO** = ____ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* **YES** = Go to SC 5.1 **NO** ____ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) **YES** = Category I **NO** = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES** = Go to SC 6.1 **NO** ____ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? **YES** = Category II **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES** = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	

Comments:

Wetland name or number: Q-Bremerton

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland Q - onsite Date of site visit: August 2011

Rated by: T. SMITH Trained by Ecology? Yes____ No____ Date of training:____

SEC: 22 TWNSHP: 23N RNGE: 1 Is S/T/R in Appendix D? No

Map of wetland unit: Figure Appendix A Estimated size 2,903 sf

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I____ II____ III__X__ IV____

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	16
Score for Hydrologic Functions	7
Score for Habitat Functions	18
TOTAL Score for Functions	41

Category based on SPECIAL CHARACTERISTCS of Wetland I____ II____ Does not apply __X__

Final Category (choose the "highest" category from above") 3

Summary of basic information about the wetland unit.

Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdnnal			
None of the above		Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply and refer to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe (NO) – **Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   (NO) – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____At least 30% of the open water area is deeper than 6.6 (2 m)?
   (NO) – go to 4 **YES – The wetland class is Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____The wetland is on a slope *(slope can be very gradual)*.
   _____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   (NO) – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   (NO) – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 (YES) – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   (No) – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

Combination of classes found within the wetland unit being rated	Class to use for the wetland
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D 1	**Does the wetland have the potential to improve water quality?**	
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) .....points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet.....points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*).....points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___ 3**
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area .....points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area .....points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area .....points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area .....points = 0 **Map of Cowardin vegetation classes**	**Figure ___ 5**
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland.....points = 4 • Area seasonally ponded is > 1/4 total area of wetland.....points = 2 • Area seasonally ponded is < 1/4 total area of wetland.....points = 0 **Map of Hydroperiods**	**Figure ___ 0**
	Total for D 1 *Add the points in the boxes above*	8
D 2	**Does the wetland have the opportunity to improve water quality?** *(see p. 44)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other STORMWATER DISCHARGES FROM ROADWAY SURFACE **YES** multiplier is 2 **NO** multiplier is 1	Multiplier 2
◆	**TOTAL – Water Quality Functions** Multiply the score from D1 by D2; then *add score to table on p. 1*	16
D 3	**Does the wetland have the potential to reduce flooding and erosion?**	
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) .....points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet.....points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*.....points = 0	4
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet.....points = 7 • The wetland is a "headwater" wetland .....points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet .....points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet .....points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water .points = 1 • Marks of ponding less than 0.5 ft.....points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit.....points = 5 • The area of the basin is 10 to 100 times the area of the unit.....points = 3 • The area of the basin is more than 100 times the area of the unit .....points = 0 • Entire unit is in the FLATS class.....points = 5	3
	Total for D 3 *Add the points in the boxes above*	7

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 49)* Multiplier 1
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	7

Comments:

Pages 5-7 do not apply to wetland ∴ removed

HYDROLOGIC FUNCTIONS - Indicators that wetland functions to provide important habitat (only 1 score per box)

H 1 Does the wetland have the potential to provide habitat for many species?

H 1.1 Vegetation structure *(see P. 72)*:

Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.

___ Aquatic Bed
X Emergent plants
X Scrub/shrub (areas where shrubs have > 30% cover)
X Forested (areas where trees have > 30% cover)

If the unit has a forested class check if:
___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon.

Add the number of vegetation types that qualify. If you have:
4 structures or more .....points = 4
2 structures .....points = 1
3 structures .....points = 2
1 structure.....points = 0

Map of Cowardin vegetation classes

Figure ___

2

H 1.2 Hydroperiods *(see p.73)*:

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).

___ Permanently flooded or inundated
___ Seasonally flooded or inundated
X Occasionally flooded or inundated
X Saturated only
___ Permanently flowing stream or river in, or adjacent to, the wetland
___ Seasonally flowing stream in, or adjacent to, the wetland
___ **Lake-fringe wetland .....= 2 points**
___ **Freshwater tidal wetland.....= 2 points**

4 or more types present points = 3
3 or more types present ..... points = 2
2 types present ..... points = 1
1 type present..... points = 0

Map of hydroperiods

Figure ___

1

H 1.3 Richness of Plant Species *(see p. 75)*:

Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.

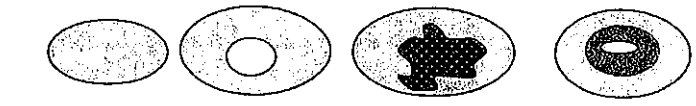
List species below if you want to:

If you counted:
> 19 species.....points = 2
5 – 19 species .....points = 1
< 5 species.....points = 0

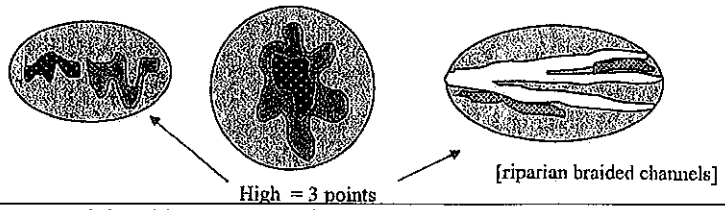
1

H 1.4 Interspersion of Habitats *(see p. 76)*:

Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [riparian braided channels]

Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".

Use map of Cowardin classes.

Figure ___

3

H 1.5 Special Habitat Features *(see p. 77)*:

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

___ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long)
___ Standing snags (diameter at the bottom > 4 inches) in the wetland
___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m)
___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1 TOTAL Score – potential for providing habitat *Add the points in the column above* **8**

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use).. ..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4** __X__ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ Heavy grazing in buffer..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0** ____ Buffer does not meet any of the criteria above..... **points = 1** **Arial photo showing buffers**	**Figure ___** **3**
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* **YES = 4 points** (go to H 2.3) **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? **YES = 2 points** (go to H 2.3) **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? **NO** = 0 points	2

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife *(full descriptions in WDFW PHS report p. 152)*. ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important *(full descriptions in WDFW PHS report p. 158)*. _ _ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie *(full descriptions in WDFW PHS report p. 161)*. ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed ..... points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3 • There is at least 1 wetland within 1/2 mile ..... points = 2 • There are no wetlands within 1/2 mile ..... points = 0	5
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	10
	TOTAL for H 1 from page 8	8
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	18

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type. Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. **YES** = Go to SC 1.1 **NO** (NO) ____	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES** = Category I **NO** = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? **YES** = Category I **NO** = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D ____ or accessed from WNHP/DNR web site ____ **YES** ____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 **NO** ✓ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? **YES** = Category 1 **NO** (NO) ____ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? **YES** = go to question 3 **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? **YES** = go to question 3 **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? **YES** = Is a bog for purpose of rating **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? **YES** = Category I **NO** = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. **YES** = Category I **NO** = ____ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* **YES** = Go to SC 5.1 **NO** ____ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) **YES** = Category I **NO** = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES** = Go to SC 6.1 **NO** ____ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? **YES** = Category II **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES** = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	

Comments:

Wetland name or number: R-Bremerton

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland R - onsite Date of site visit: August 2011

Rated by: T. SMITH Trained by Ecology? Yes____ No____ Date of training:____

SEC: 22 TWNSHP: 23N RNGE: 1 Is S/T/R in Appendix D? No

Map of wetland unit: Figure Appendix A Estimated size 5,588 sf

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I____ II____ III__X__ IV____

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	7
Score for Habitat Functions	18
TOTAL Score for Functions	35

Category based on SPECIAL CHARACTERISTCS of Wetland I____ II____ Does not apply __X__

Final Category (choose the "highest" category from above") **3**

Summary of basic information abont the wetland unit.

Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

SP1.	*Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2.	*Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Western Washington

If the hydrogeomorphic class listed for each question do not apply to the wetland unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrogeomorphic class in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____At least 20% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____The wetland is on a slope *(slope can be very gradual)*.
   _____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 YES – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

If all three areas within the wetland unit are:	Then the class is:
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

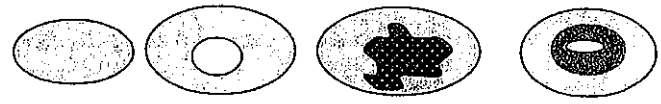
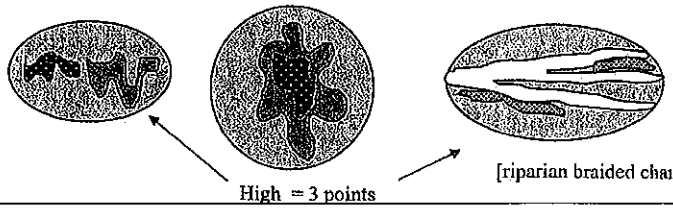
D 1	**Does the wetland have the potential to improve water quality?**	
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) .....points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet.....points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*).....points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___ 3**
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area .....points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area .....points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area .....points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area .....points = 0 **Map of Cowardin vegetation classes**	**Figure ___ 5**
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland.....points = 4 • Area seasonally ponded is > 1/4 total area of wetland.....points = 2 • Area seasonally ponded is < 1/4 total area of wetland.....points = 0 **Map of Hydroperiods**	**Figure ___ 2**
	Total for D 1 *Add the points in the boxes above*	10
D 2	**Does the wetland have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 44)* Multiplier 1
◆	**TOTAL – Water Quality Functions** Multiply the score from D1 by D2; then *add score to table on p. 1*	10
D 3	**Does the wetland have the potential to reduce flooding and erosion?**	
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) .....points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet.....points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*.....points = 0	4
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet.....points = 7 • The wetland is a "headwater" wetland .....points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet .....points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet .....points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water .points = 1 • Marks of ponding less than 0.5 ft.....points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit.....points = 5 • The area of the basin is 10 to 100 times the area of the unit.....points = 3 • The area of the basin is more than 100 times the area of the unit .....points = 0 • Entire unit is in the FLATS class.....points = 5	3
	Total for D 3 *Add the points in the boxes above*	7

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 49)* Multiplier 1
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	7

Comments:

Pages 5-7 do not apply to wetland ∴ removed

HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat

H 1	**Does the wetland have the potential to provide habitat for many species?**	
	H 1.1 Vegetation structure *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed __X__ Emergent plants __X__ Scrub/shrub (areas where shrubs have > 30% cover) ___ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more .....points = 4 — 3 structures .....points = 2 2 structures .....points = 1 — 1 structure.....points = 0	**Figure ___** **1**
	H 1.2 Hydroperiods *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated — 4 or more types present points = 3 __x__ Seasonally flooded or inundated — 3 or more types present ..... points = 2 __X__ Occasionally flooded or inundated — 2 types present ..... points = 1 __X__ Saturated only — 1 type present..... points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland .....= 2 points** ___ **Freshwater tidal wetland.....= 2 points** **Map of hydroperiods**	**Figure ___** **2**
	H 1.3 Richness of Plant Species *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species.....points = 2 5 – 19 species .....points = 1 List species below if you want to: < 5 species.....points = 0 _____ _____ _____ _____	0
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  None = 0 points Low = 1 point Moderate = 2 points  High = 3 points [riparian braided channels] Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** **2**
	H 1.5 Special Habitat Features *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ___ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* __X__ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	1
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	6

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* __X__ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use).. ..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ Heavy grazing in buffer..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0** ____ Buffer does not meet any of the criteria above..... **points = 1** **Arial photo showing buffers**	**Figure ___** **5**
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* **YES = 4 points** (go to H 2.3) **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? **YES = 2 points** (go to H 2.3) **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? **NO** = 0 points	2

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife *(full descriptions in WDFW PHS report p. 152)*. ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important *(full descriptions in WDFW PHS report p. 158)*. _ _ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie *(full descriptions in WDFW PHS report p. 161)*. ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed ..... points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3 • There is at least 1 wetland within 1/2 mile ..... points = 2 • There are no wetlands within 1/2 mile ..... points = 0	5
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	12
	TOTAL for H 1 from page 8	6
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	18

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type. *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. **YES** = Go to SC 1.1 **NO** ____	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES** = Category I **NO** = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? **YES** = Category I **NO** = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D ✓ or accessed from WNHP/DNR web site ____ **YES** ____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 **NO** ✓ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? **YES** = Category 1 **NO** ____ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? **YES** = go to question 3 **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? **YES** = go to question 3 **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? **YES** = Is a bog for purpose of rating **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? **YES** = Category I **NO** = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. **YES** = Category I **NO** = ____ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* **YES** = Go to SC 5.1 **NO** ____ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) **YES** = Category I **NO** = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES** = Go to SC 6.1 **NO** ____ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? **YES** = Category II **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES** = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	

Comments:

Wetland name or number: S-Bremerton

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland S - onsite Date of site visit: August 2011

Rated by: T. SMITH Trained by Ecology? Yes____ No____ Date of training:____

SEC: 22 TWNSHP: 23N RNGE: 1 Is S/T/R in Appendix D? No

Map of wetland unit: Figure Appendix A Estimated size 4,384 sf

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I____ II____ III__X__ IV____

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	12
Score for Hydrologic Functions	7
Score for Habitat Functions	20
TOTAL Score for Functions	39

Category based on SPECIAL CHARACTERISTCS of Wetland I____ II____ Does not apply __X__

Final Category (choose the "highest" category from above") 3

Summary of basic information about the wetland unit.

Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

SP1.	*Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2.	*Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Western Washington

[illegible]

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____The wetland is on a slope *(slope can be very gradual)*.
   _____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

[illegible]	[illegible]
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D 1	**Does the wetland have the potential to improve water quality?**	
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) .....points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet.....points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*).....points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___ 3**
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area .....points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area .....points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area .....points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area .....points = 0 **Map of Cowardin vegetation classes**	**Figure ___ 5**
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland.....points = 4 • Area seasonally ponded is > 1/4 total area of wetland.....points = 2 • Area seasonally ponded is < 1/4 total area of wetland.....points = 0 **Map of Hydroperiods**	**Figure ___ 4**
	Total for D 1 *Add the points in the boxes above*	12
D 2	**Does the wetland have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 44)* Multiplier 1
◆	**TOTAL – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	12
D 3	**Does the wetland have the potential to reduce flooding and erosion?**	
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) .....points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet.....points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch .....points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*.....points = 0	4
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet.....points = 7 • The wetland is a "headwater" wetland .....points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet .....points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet .....points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water .points = 1 • Marks of ponding less than 0.5 ft.....points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit.....points = 5 • The area of the basin is 10 to 100 times the area of the unit.....points = 3 • The area of the basin is more than 100 times the area of the unit .....points = 0 • Entire unit is in the FLATS class.....points = 5	3
	Total for D 3 *Add the points in the boxes above*	7

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 49)* Multiplier 1
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	7

Comments:

Pages 5-7 do not apply to wetland ∴ removed

Wetland name or number: S-Bremerton

HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat (circle one score per box)

H 1 Does the wetland have the potential to provide habitat for many species?

H 1.1 Vegetation structure *(see P. 72)*:

Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.

___ Aquatic Bed
X Emergent plants
X Scrub/shrub (areas where shrubs have > 30% cover)
___ Forested (areas where trees have > 30% cover)

If the unit has a forested class check if:
___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon.

Add the number of vegetation types that qualify. If you have:
4 structures or more .....points = 4
2 structures .....points = 1
3 structures .....points = 2
1 structure.....points = 0

Map of Cowardin vegetation classes

Figure ___

1

H 1.2 Hydroperiods *(see p.73)*:

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).

___ Permanently flooded or inundated
x Seasonally flooded or inundated
X Occasionally flooded or inundated
X Saturated only
___ Permanently flowing stream or river in, or adjacent to, the wetland
___ Seasonally flowing stream in, or adjacent to, the wetland
___ **Lake-fringe wetland .....= 2 points**
___ **Freshwater tidal wetland.....= 2 points**

4 or more types present points = 3
3 or more types present ..... points = 2
2 types present ..... points = 1
1 type present..... points = 0

Map of hydroperiods

Figure ___

2

H 1.3 Richness of Plant Species *(see p. 75)*:

Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.

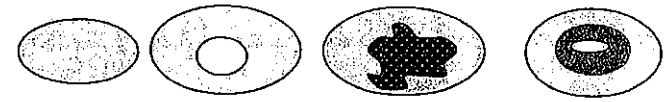
List species below if you want to:

If you counted:
> 19 species.....points = 2
5 – 19 species .....points = 1
< 5 species.....points = 0

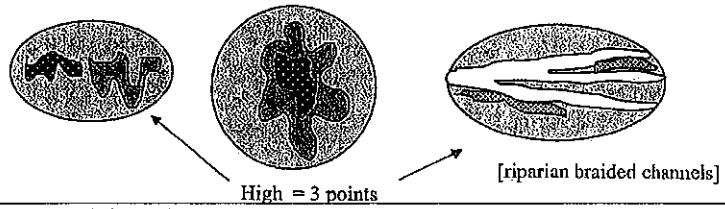
1

H 1.4 Interspersion of Habitats *(see p. 76)*:

Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [riparian braided channels]

Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".

Use map of Cowardin classes.

Figure ___

2

H 1.5 Special Habitat Features *(see p. 77)*:

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

x Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long)
___ Standing snags (diameter at the bottom > 4 inches) in the wetland
___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m)
___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
X Invasive plants cover less than 25% of the wetland area in each stratum of plants
NOTE: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1 TOTAL Score – potential for providing habitat *Add the points in the column above* **8**

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	Circle the appropriate points
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* __X__ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use).... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference .... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference .... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference .... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference .... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK.... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK .... **points = 2** ____ Heavy grazing in buffer.... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) .... **points = 0** ____ Buffer does not meet any of the criteria above.... **points = 1** **Arial photo showing buffers**	**Figure ___** **5**
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* **YES = 4 points** (go to H 2.3) **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? **YES = 2 points** (go to H 2.3) **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? **NO** = 0 points	2

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife *(full descriptions in WDFW PHS report p. 152)*. ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important *(full descriptions in WDFW PHS report p. 158)*. ____ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie *(full descriptions in WDFW PHS report p. 161)*. ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed ..... points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3 • There is at least 1 wetland within 1/2 mile ..... points = 2 • There are no wetlands within 1/2 mile ..... points = 0	5
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	12
	TOTAL for H 1 from page 8	8
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	20

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type. Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. **YES** = Go to SC 1.1 **NO**	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES** = Category I **NO** = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? **YES** = Category I **NO** = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating 1/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D ✓ or accessed from WNHP/DNR web site ____ **YES** ____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 **NO** ✓ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? **YES** = Category 1 **NO** ____ not a Heritage Wetland	**Cat 1**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? **YES** = go to question 3 **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? **YES** = go to question 3 **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? **YES** = Is a bog for purpose of rating **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? **YES** = Category I **NO** = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. **YES** = Category I **NO** = ____ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* **YES** = Go to SC 5.1 **NO** _____ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) **YES** = Category I **NO** = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES** = Go to SC 6.1 **NO** _____ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? **YES** = Category II **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES** = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	

Comments:

Appendix D

The Wetland Corps Wetland Delineation and Analysis Report

THE WETLAND CORPS

Wetland Delineation · Habitat Management Plans · Riparian Restoration · Mitigation · Biological Evaluation

WETLAND DELINEATION AND ANALYSIS REPORT

MASON COUNTY PARCEL: 42003-00-00000

Prepared for:

Hunter Family Farm Limited Partnership
c/o Dave Kamin
870 West Skokomish Valley Road
Shelton, Wa 98584

Prepared by:
Lee Boad & Heather Lane

April 2011

WETLAND DELINEATION AND ANALYSIS REPORT

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April, 2011

WETLAND DELINEATION AND ANALYSIS REPORT

MASON COUNTY PARCEL: 42003-00-00000

1.0 INTRODUCTION

The Wetland Corps has been authorized by David Kamin, to perform a wetland delineation and analysis at the property located off of West Dayton Airport Road in Mason County, Washington. The delineation was performed to determine the extent, and jurisdictional status, of the wetland area located in the western portion of the property (Photo 1).

The subject property is located in Section 3, Township 20 North, Range 4 West WM (Figure 1 Vicinity Map). The entire property is 497.86 acres in size according to the Mason County Assessor. The portion of the wetland within the property was flagged, however, the study area encompassed the entire portion of the property located south of the Dayton Airport Road.

Within the subject property, this work was focused on the westernmost wetland area but also included a walkthrough of the entire property south of the Dayton Airport Road. The walkthrough was conducted to investigate areas appearing as potential wetlands on aerial photo imagery (Google Earth 2011). The findings conclude that all areas investigated on the premise of aerial photo appearance are upland areas, previously cleared for log landings or debris stockpiling, and do not meet wetland criteria.

The findings of this work conclude that one wetland meeting criteria for Category I Wetlands is present within the subject property.

The sections below provide: (1) an introduction to the site; (2) a description of methods used in the field delineation; and, (3) technical results.

2.0 SITE CONDITIONS

Photo 1. Study Area circled in red, wetland area circled in yellow.

The parcel is entirely occupied by forestland, the majority of which has been logged in the last 20 years. A depressional/flats wetland complex with forested, open water, and scrub shrub components is located within the area circled in Photo 1. Topography is generally flat with gentle slopes adjacent to the wetland. Within the property, upland areas adjacent to and within the wetlands are densely forested with a second growth stand dominated almost entirely by coastal pine. The wetland outlet is a 3 foot culvert placed under a gravel maintenance road on the adjacent property to the west.

3.0 METHODOLOGY

This wetland delineation followed the methodology outlined in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) U.S. Army Corps of Engineers May 2010. WAC 173-22-035 states delineations should be done according to this manual and supplements. This became effective March 14, 2011.

Review of Existing Information

Preliminary information was gathered on the project site prior to the field review and delineation. General information sources included: 1974 United States Fish and Wildlife Service (USFWS), National Wetland Inventory (NWI) maps, the *Soil Survey of Mason County Area, Washington* (USDA, 1960), and the Mason County Resource Ordinance.

Field Delineation

Methodology used for wetland delineation was consistent with the technical approaches articulated in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual. This document is the wetland delineation manual that is used in determining wetland areas when applying state and local government regulations under the Shoreline Management Act and the Growth Management Act in Washington State.

The extent and location of project site wetlands were determined during field work performed on April 18th, 2011 in which Field work was conducted under sunny conditions with an ambient temperature ranging between 40 and 50 degrees Fahrenheit. A second review was conducted on April 25th to verify the type and location of the wetland outlet located on the adjacent property to the west. The time of year and recent precipitation history were considered in assessing the type and extent of wetlands presumed to exist on site.

Specific field methodology used in determining the extent and location of wetland areas include:

- As part of the initial reconnaissance, the subject property was walked to determine the general extent and location of potential wetland areas;
- Wetland and upland sample plots were established in the identified potential wetland areas and in the adjacent upland area;
- Wetland boundaries within the property were delineated with flagging by noting localized topography and vegetation patterns and comparing parameters of hydrology, soil, and vegetation with data collected at the wetland and upland sample plots.
- A walkthrough of the contiguous wetland portion of the property to the southwest was conducted to assess the hydrologic continuity of the complex and determine any association with mapped streams

Data was collected at eight sample plot locations, four upland and four wetland. Data collected at each sample plot was entered onto a Routine Wetland Determination Data Form (USACOE Western Mountains, Valleys, and Coast- Version 2.0). Copies of data forms for each sample plot are provided in Appendix A.

Wetland Evaluation

The Mason County Resource Ordinance, defines wetland categories according to *Washington State Wetland Rating System, Western Washington, 2nd Edition,* or as amended hereafter (Department of Ecology 1993). This wetland evaluation used the new rating manual, *Washington State Wetland Rating System for Western Washington* (Hruby 2004). This system identifies various complexities within wetland structures, habitat attributes, and various functions associated with wetlands. The rating form completed for this wetland is provided in Appendix C.

4.0 BACKGROUND INFORMATION

Mason County Soil Survey

The soil survey of Mason County indicates one onsite soil types (USDA, 1960):

Shelton gravelly sandy loam, 5 to 15 percent slopes (Sf).-This very extensive soil occupies undulating to rolling glacial moraines. The Shelton series consists of well-drained, brown soils on uplands. They have developed mainly from continental glacial till mixed with considerable basaltic rock of local origin and with local drift from the Olympic Mountains. The cemented till is at depths of 30 to 36 inches. The annual rainfall ranges from 60 to 90 inches. The native vegetation is a dense forest consisting almost entirely of Douglas-fir and a dense understory of Oregongrape, vine maple, and huckleberry. Shelton soils are dominant on the rolling moraines in the southern and western parts of the county. They are similar to the Alderwood soils but have developed under more rainfall, and they are redder in color and deeper. The Shelton soils differ from the Hoodsport soils at lower altitudes in that they are deeper and less stony and, in formation, have been influenced less by basaltic material.

Lystair loamy sand, 0 to 5 percent slopes (Lb) & **Lystair loamy sand, 5 to 15 percent slopes** (Lc).-The Lystair series consists of somewhat excessively drained, brown, sandy soils that occupy hilly kettles and kames and nearby level outwash plains. They have developed from nearby gravel-free, loose, sandy glacial drift deposited mainly by out wash waters. The rainfall is 60 to 90 inches a year. The vegetation is a forest consisting mainly of Douglas-fir and some thick stands of lodgepole pine, and there is an understory of kinnikinnick, Oregongrape, bracken fern, and salal. The soils are somewhat excessively drained and are droughty. They have a low capacity for available moisture. Lystair soils occur in the western part of the county in association with the Shelton and Grove soils. They have a redder profile than the Indianola soils. In addition, they have developed from more basic parent material, under higher rainfall, and have darker sandy subsoils and substrata. This soil differs from Lystair sandy loam, 0 to 5 percent slopes, in texture of the top 12 to 15 inches of soil. The entire profile is somewhat more loose and porous. Depths to the sand substratum range from 25 to 30 inches. *Use and suitability.*- All of this soil is in secondgrowth Douglas-fir, hemlock, and associated deciduous trees and shrubs. Some areas are covered by lodgepole pine.

Grove gravelly sandy loam, 0 to 5 percent slopes (Gh) & **Grove gravelly sandy loam, 5 to 15 percent slopes** (Gk).- the Grove series consists of somewhat excessively drained, reddish-brown gravelly soils. It occupies the large glacial outwash plains. The Grove soils have developed from Vashon glacial drift, modified considerably by inclusions of local basaltic rock and mixed material from the Olympic Mountain glaciers. The rainfall ranges from 60 to 100 inches a year. The vegetation is coniferous forest, with an understory dominated by the lower growing mosses, kinnikinnick, and snowberry, and these mixed with huckleberry, salal, and Oregon-grape. The droughtresistant manzanita is especially- common on the Grove soils. The cover is not so profuse nor so rank as that on the adjacent Shelton and Hoodsport soils. Logged areas restock slowly to Douglas-fir, and some pure stands of lodgepole pine are on these soils. The Grove soils occur in the western part of the county, in association with the Shelton and Hoodsport soils. Grove soils differ front the Everett soils farther east in their parent material and in having redder surface soil and subsoil. This soil occupies nearly level out-wash plain.

McKenna gravelly loam, 0 to 3 percent slopes (Mc).This soil occurs as small scattered areas. The surface soil is friable and granular, dark-gray (nearly black when moist) gravelly loam that is high in organic matter. Below this, to depths of 10 to 15 inches, is firm, dark grayish-brown very gravelly loam or gravelly clay loam that has a weak, subangular blocky structure and is moderately high in organic matter. This grades to firm, massive subsoil consisting of light brownish-gray very gravelly loamy sand. The substratum begins at depths of 24 to 30 inches and consists of slightly to moderately compact, olive-brown and palebrown coarse gravel and sand that is faintly mottled and stained. In many areas there is a thin, highly organic silty layer on the surface. The soil is medium acid to strongly acid in all layers. Gravel prevents cultivation. The soil is wet most of the year but dries rapidly in summer. *Use and suitability.*-Nearly all this soil is in natural cover. A few areas have been cleared for pasture and grazing. The narrow areas of this soil, and of other McKenna soils, provide green pastures after those on surrounding upland soils have dried. This soil is in capability subclass IVw; it is poor for evergreen and deciduous trees.

National Wetlands Inventory

The USFWS NWI map shows no wetlands within the property (See Figure 3. NWI Map). The nearest wetland is mapped approximately 1 mile to the north.

DNR Water Resources Map

The Department of Natural Resources Water Resources Map identifies a Type N Stream within the property (See Figure 5. DNR Water Resource Map). It is mapped to originate within the property and drain to the southwest off the property. However, the field review verified that the stream channel originates southwest of the property at the wetland outlet.

5.0 WETLAND DELINEATION RESULTS

General Wetland Conditions

One wetland is present within the study area. The northeastern portion is a scrub shrub unit with both depressional and flats characteristics. Several interspersed upland hummocks are present within the delineated boundary. Within the property, the wetland/upland transition is defined primarily by soil characteristics and hydrological indicators with vegetation indicators primarily in the shrub layer. It extends southwest into a forested/scrub shrub depressional wetland swale with a boundary easily identified by vegetation, soil, and hydrological patterns. No pool/riffle or channelized complex meeting criteria for a stream is present within the subject property; however, a stream channel was identified to originate at the wetland outlet on the adjacent property.

Data was collected at four sample plot locations within the wetland. All plots include corresponding wetland and upland plot data. General findings on wetland soils, hydrology, and vegetation within the wetland are provided below. Specific findings are on the data forms in Appendix A.

Soils

Soil pits excavated within the upland area surrounding the wetland revealed characteristics consistent with the mapped soil type, Grove gravelly sandy loam. The surface soil is a reddish brown gravelly sandy loam. This is underlain by similar soil with more gravel.

Soil pits excavated within the wetland areas are most consistent with McKenna gravelly loam (Mc). The surface soil is a dark gray gravelly loam with high organic content. This is underlain by a dark grayish brown very gravelly loam with lesser organic matter. One sample plot within the southwestern portion of the wetland contained gravelly clay loam in the subsurface layer.

Hydrology

The northeastern portion of the wetland area within the property includes many upland hummocks and contains seasonally flooded, occasionally flooded, and saturated only hydrological regimes. Gradual changes in vegetation communities and abrupt changes in soil characteristics coincided with the transition from saturated and inundated to dry and non-inundated areas at the time of the review thus defining the extent of the wetland. All areas beyond the flagged unit contain no indicators of wetland hydrology.

Vegetation

Vegetation communities within upland areas adjacent to wetlands consist of an overstory of dominated by coastal pine with interspersed white pine, Douglas fir, and red alder. The understory is dominated by fools huckleberry, salal, Oregon grape, and evergreen huckelberry.

The northeastern portion of the wetland area is characterized as a scrub shrub wetland with mixed forested components and interspersed upland hummocks. Overstory species include coastal pine, western red cedar, and red alder while the understory contains spiraea, salmonberry, and scouler willow. Species identified within the herbaceous layer were mannagrass and touch-me-not. The most prevalent species identified within the upland hummocks was fools huckleberry.

The southwestern portion of the wetland contains a mature forested overstory dominated by western red cedar with an understory of spiraea, alder, and salmonberry. The only herbaceous species identified was reed mannagrass. It is likely that other herbaceous species will become prevalent as the growing season progresses.

Photo 2. Northeastern portion of wetland within subject property.

Photo 3. Algal mat located within sample plot 4.

Photo 4. Forested, southwestern portion of wetland

Photo 5. Wetland outlet

6.0 WETLAND EVALUATION RESULTS

The wetland meets criteria for a Category I Wetland according to the Western Washington Wetland Rating Form, Categorization Based on Special Characteristics (SC4 Forested Wetlands) criteria. The wetland contains over 1 acre of mature forested area, most of which is located on the adjacent property to the east. The presence of mature overstory trees with diameters exceeding 21" DBH satisfy the WDFWPH mature forest criteria.

The rating based on functional attributes for the wetland is Category II with moderate habitat function (27 pts), however, the state rating form requires that the higher of the two ratings be assigned to the wetland. Therefore the wetland is to be regulated as Category I based on the DOE criteria.

According to Chapter 17.01.070 of the Mason County Resource Ordinance the required buffer for Category I Wetlands scoring 20-28 points in habitat function is the following.

Low Impact Land Use (75-feet)
Low Impact Land Use is defined in the Mason County Resource Ordinance as forestry or open space (low-intensity such as passive recreation and natural resources preservation, minor transportation improvements).

Moderate Impact Land Use (110-feet)
Moderate Impact Land Use is defined as single-family residential lots, residential subdivisions with 1 unit/acre or less, moderate-intensity open space (parks), new agriculture (moderate-intensity such as orchards and hay fields), and transportation enhancement projects.

High Impact Land Use (200-feet)

High Impact Land Use is defined as commercial, urban, industrial, institutional, retail sales, residential subdivisions with more than 1 unit/acre, new agriculture (high-intensity processing such as dairies, nurseries and green houses, raising and harvesting crops requiring annual tilling, raising and maintaining animals), new transportation corridors, high intensity recreation (golf courses, ball fields), and hobby farms.

7.0 OPTIONS TO REDUCE BUFFER

Three permitting options are available for conducting work within the required wetland buffer;

The first is the use of buffer averaging which allows a 25% reduction of the portion of the buffer necessary to accommodate a given project. Chapter 17.01.070 outlines the general criteria for buffer width averaging.

Wetland Buffer Width Averaging
The boundary of the vegetation area buffer may be modified by averaging buffer widths. If buffer averaging is used, the following conditions must be met:

a. The total area contained in the buffer after averaging hall be no less than that contained within the buffer prior to averaging. In other words, mitigation for buffer impacts will be on a
minimum of a 1: 1 ratio; and

b. Buffer averaging will incorporate site conditions to minimize (to the maximum extent possible) impacts on the functions of the wetland to provide measures to increase the functions and values of the wetland buffer beyond what is currently in place; and

c. In no instance shall the width be reduced to less than ¾ of the required width for each of the wetland categories. 100 feet for Category I, 75 feet for Category II, or 25 feet for Categories III or IV.

The second option is the wetland buffer reduction process for high impact land use proposals, which this wetland qualifies for, due to the habitat score. Chapter 17.01.070 outlines the general criteria for buffer reduction.

a. For wetlands that score moderate or high for habitat (20 points or more for the habitat functions), the width of the buffer may be reduced to that required for moderate-intensity impacts provided that: (1) A relatively undisturbed, vegetated area corridor at least 100-feet wide is protected between the wetland and any other Priority Habitats as defined by the Washington State Department of Fish and Wildlife. Protection of the corridor shall be assured by a conservation easement.

(2) Measures to minimize the impacts of the land use shall be applied. Examples of these measures are shown in Table X. b. For wetlands that score less than 20 points for habitat, the buffer width can be reduced to that required for moderate-impact land

uses provided that measures to minimize the impacts of the land use shall be applied. Examples of these measures are shown in Table X (Appendix B).

The third option is a Mason Environmental Permit (MEP) which is obtained using an administrative review process. A wetland buffer mitigation plan would need to be prepared and submitted with the MEP application for review. Chapter 17.01.070 outlines the general criteria for wetland mitigation.

F. MITIGATION FOR WETLAND IMPACTS
As a condition of any permit allowing alteration of wetlands and/or wetland buffers, the County shall require that the applicant engage in the restoration, creation or enhancement of wetlands and their buffers in order to offset the impacts resulting from the applicant's actions. If wetland or wetland buffer impacts are proposed, a sequence of review must be considered. First, the applicant must consider avoiding the wetland or wetland buffer. If the applicant can not avoid the wetland or wetland buffer, they must consider reducing (or minimizing) the impact. Impacts which can not be avoided must be mitigated as provided in this ordinance. Mitigation for buffers shall be on a minimum 1:1 ratio. Approval of the mitigation plan shall be signified by a notarized memorandum of agreement signed by the applicant and Director of the Department of Community Development or designee, and recorded with the Mason County Auditor. The agreement shall refer to all requirements for the mitigation project. The County may suspend or revoke a permit if it finds that the applicant has not complied with the conditions or limitations set forth in the permit or has exceeded the scope of work set for in the permit. The overall goal of any compensatory project shall be no net loss of wetlands function and acreage.

TWC has extensive experience with each of the three processes in Mason County. If you have any further questions or need for additional information, feel free to contact us.

8.0 SUMMARY

This wetland report documents the presence of a Category 1 Wetland within the property. The entire wetland area within the property has been flagged. The required buffer is 75', 110', or 200' depending on the intended land use. Permitting options are available to reduce this buffer to accommodate site development.

We trust this information is sufficient for your needs at this time. Thank you for choosing The Wetland Corps as your wetland consultant. If you have any questions, feel free to call.

Respectfully submitted,
The Wetland Corps

Lee Boad
Senior Ecologist

Heather Lane
Staff Wetland Specialist

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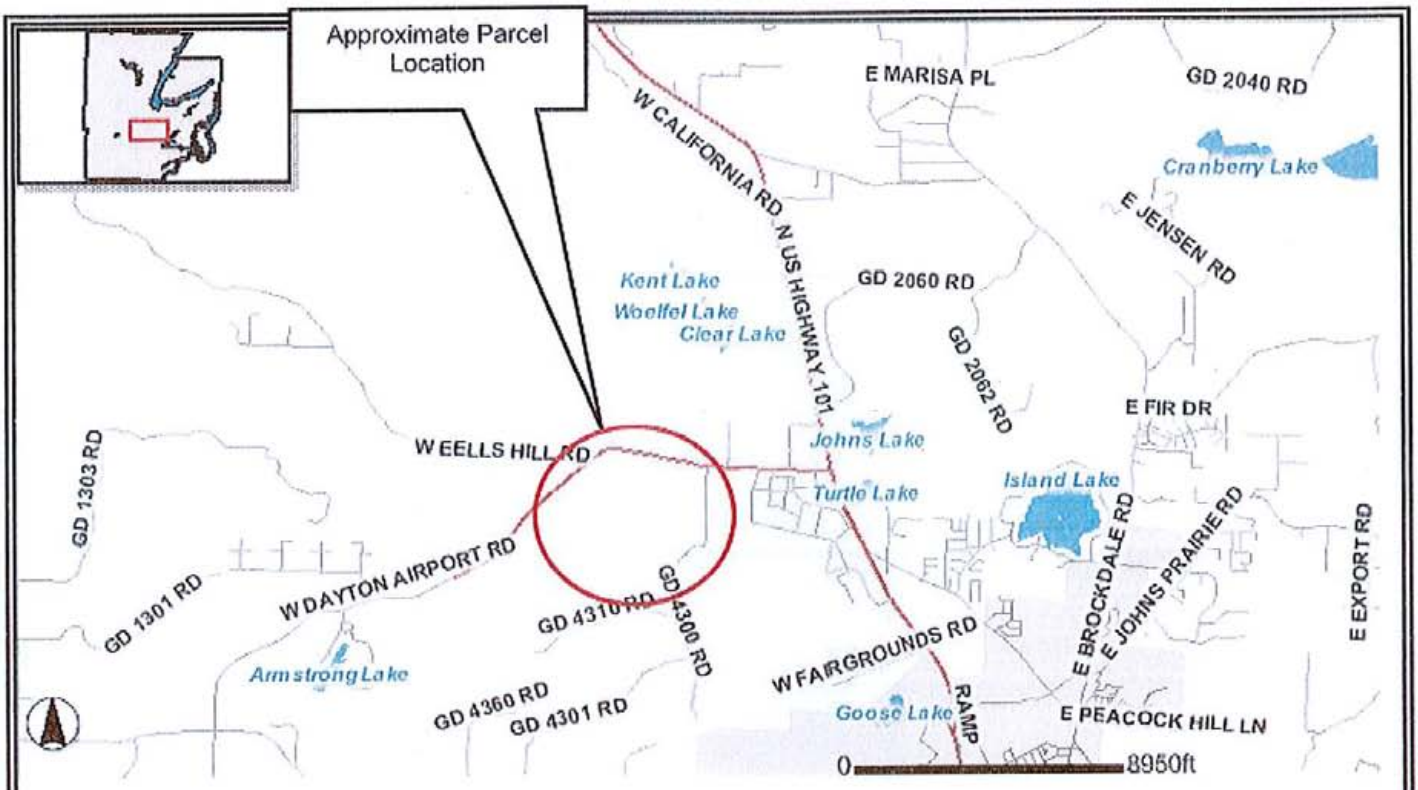

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FIGURE 1 VICINITY MAP

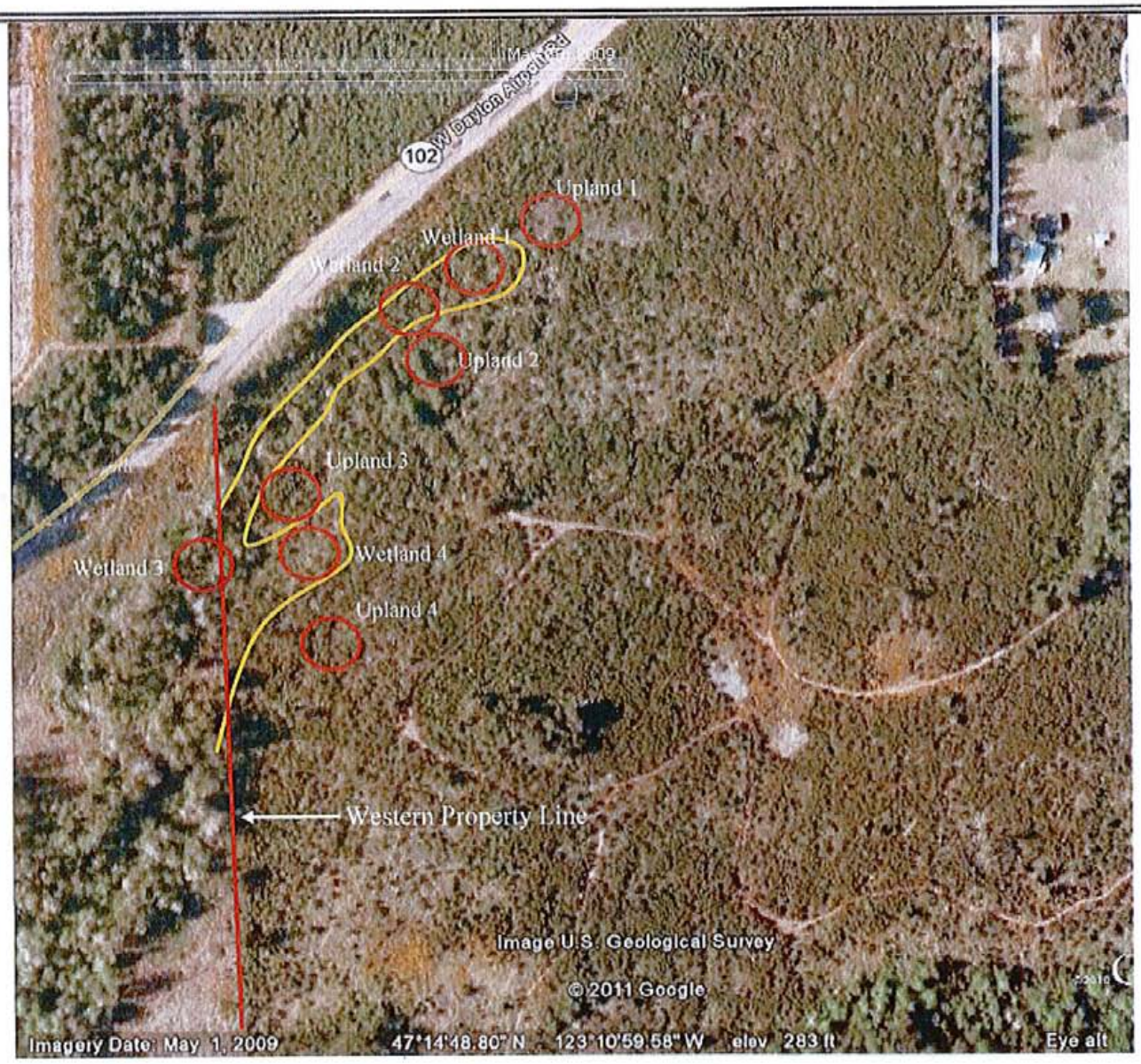
Project Name: Parcel 42003-00-00000 Wetland Delineation

Location: Shelton, Washington

Project: TWC11-W320

Client: Hunter Family Farm Limited Partnership.

Date: 4-11

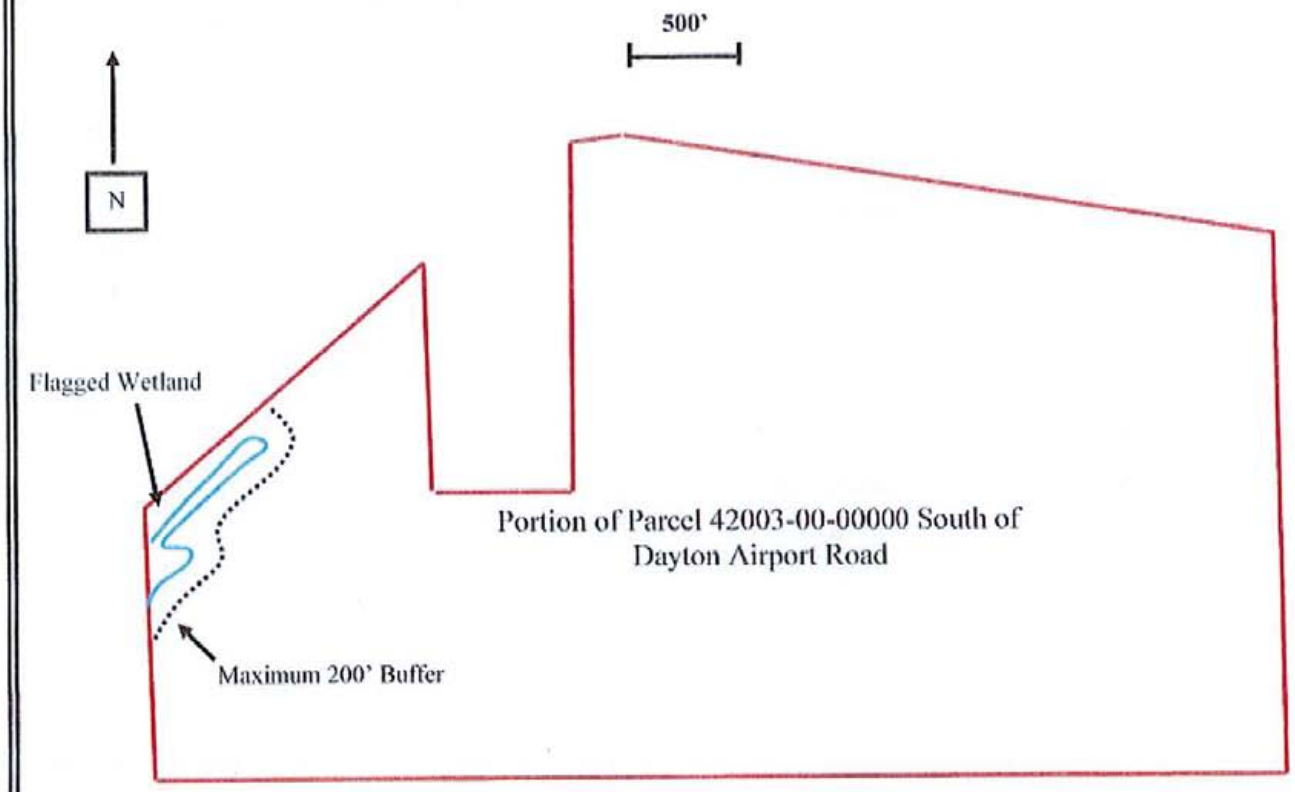


THE WETLAND CORPS

FIGURE 2A: WETLAND DELINEATION MAP

Project Name: Parcel 42003-00-00000 Wetland Delineation
Location: Shelton, Washington
Project: TWC11-W320
Client: Hunter Family Farm Limited Partnership.
Date: 4-11

Note: Yellow line shows approximate wetland edge flagged within the property



Not a Survey. All Locations Approximate

THE WETLAND CORPS

FIGURE 2B: Study Area Map
Project Name: Parcel 42003-00-00000 Wetland Delineation
Location: Shelton, Washington
Project: TWC11-W320
Client: Hunter Family Farm Limited Partnership.
Date: 4-11

Figure adapted from NWI Mapper website

Figure 3 National Wetland Inventory Map
Section 13 Township 22 North Range 5 West

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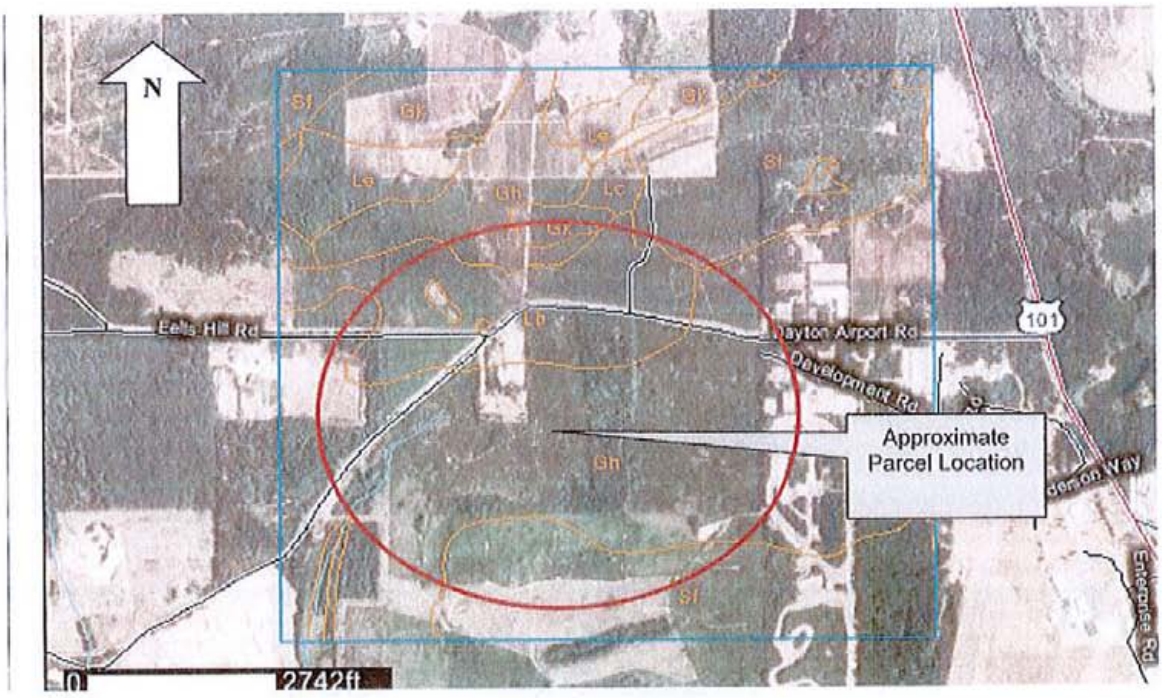
FIGURE 3 NWI MAP
Project Name: Parcel 42003-00-00000 Wetland Delineation
Location: Shelton, Washington
Project: TWC11-W320
Client: Hunter Family Farm Limited Partnership.
Date: 4-11
Note: Nearest wetland 1 mile to the north



Onsite Soil Conditions based on Mason County Soil Survey

Subject Site Soils:

Lystair loamy sand, 0 to 5 percent slopes (Lb) & **Lystair loamy sand, 5 to 15 percent slopes** (Lc).-The Lystair series consists of somewhat excessively drained, brown, sandy soils that occupy hilly kettles and kames and nearby level outwash plains. They have developed from nearby gravel-free, loose, sandy glacial drift deposited mainly by out wash waters. The rainfall is 60 to 90 inches a year. The vegetation is a forest consisting mainly of Douglas-fir and some thick stands of lodgepole pine, and there is an understory of kinnikinnick, Oregongrape, bracken fern, and salal. The soils are somewhat excessively drained and are droughty. They have a low capacity for available moisture. Lystair soils occur in the western part of the county in association with the Shelton and Grove soils. They have a redder profile than the Indianola soils. In addition, they have developed from more basic parent material, under higher rainfall, and have darker sandy subsoils and substrata. This soil differs from Lystair sandy loam, 0 to 5 percent slopes, in texture of the top 12 to 15 niches of soil. The entire profile is somewhat more loose and porous. Depths to the sand substratum range from 25 to 30 inches. *Use and suitability.*- All of this soil is in secondgrowth Douglas-fir, hemlock, and associated deciduous trees and shrubs. Some areas are covered by lodgepole pine.

Grove gravelly sandy loam, 0 to 5 percent slopes (Gh) & **Grove gravelly sandy loam, 5 to 15 percent slopes** (Gk).- the Grove series consists of somewhat excessively drained, reddish-brown gravelly soils. It occupies the large glacial outwash plains. The Grove soils have developed from Vashon glacial drift, modified considerably by inclusions of local basaltic rock and mixed material from the Olympic Mountain glaciers. The rainfall ranges from 60 to 100 inches a year. The vegetation is coniferous forest, with an understory dominated by the lower growing mosses, kinnikinnick, and snowberry, and these mixed with huckleberry, salal, and Oregon-grape. The droughtresistant manzanita is especially- common on the Grove soils. The cover is not so profuse nor so rank as that on the adjacent Shelton and Hoodsport soils. Logged areas restock slowly to Douglas-fir, and some pure stands of lodgepole pine are on these soils. The Grove soils occur in the western part of the county, in association with the Shelton and Hoodsport soils. Grove soils differ front the Everett soils farther east in their parent material and in having redder surface soil and subsoil. This soil occupies nearly level out-wash plain.

McKenna gravelly loam, 0 to 3 percent slopes (Mc).This soil occurs as small scattered areas. The surface soil is friable and granular, dark-gray (nearly black when moist) gravelly loam that is high in organic matter. Below this, to depths of 10 to 15 inches, is firm, dark grayish-brown very gravelly loam or gravelly clay loam that has a weak, subangular blocky structure and is moderately high in organic matter. This grades to firm, massive subsoil consisting of light brownish-gray very gravelly loamy sand. The substratum begins at depths of 24 to 30 inches and consists of slightly to moderately compact, olive-brown and palebrown coarse gravel and sand that is faintly mottled and stained. In many areas there is a thin, highly organic silty layer on the surface. The soil is medium acid to strongly acid in all layers. Gravel prevents cultivation. The soil is wet most of the year but dries rapidly in summer. *Use and suitability.*- Nearly all this soil is in natural cover. A few areas have been cleared for pasture and grazing. The narrow areas of this soil, and of other McKenna soils, provide green pastures after those on surrounding upland soils have dried. This soil is in capability subclass IVw; it is poor for evergreen and deciduous trees.

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FIGURE 4 SOIL SURVEY
Project Name: Parcel 42003-00-00000 Wetland Delineation
Location: Shelton, Washington
Project: TWC11-W320
Client: Hunter Family Farm Limited Partnership.
Date: 4-11
Note: Hydric soils mapped west of property

Appendix E

Definition of Plant Indicator Status and Wetland Determination Data Forms – Thurston County Site

DEFINITION OF PLANT INDICATOR STATUS AND DATA FORMS

Indicator

Category	**Definitions**
OBL	**Obligate Wetland**. Occurs almost always (estimated probability > 99 percent) under natural conditions in wetlands.
FACW	**Facultative Wetland**. Usually occurs in wetlands (estimated probability 67 to 99 percent), but occasionally found in uplands.
FAC	**Facultative**. Equally likely to occur in wetlands or uplands (estimated probability 34 to 66 percent).
FACU	**Facultative Upland**. Usually occurs in uplands (estimated probability 67 to 99 percent), but is occasionally found in wetlands (estimated probability 1 to 33 percent).
UPL	**Obligate Upland**. Occurs in wetlands in other regions (as defined in the *National List of Scientific Plant Names*), but occurs almost always (estimated probability > 99 percent) under natural conditions in uplands in the region specified. Species not on the list are assumed to be UPL and have an * to define these species on the data forms.
NI	**No Indicator**. These species have not been given an indicator status. They are assumed to be upland or the adjacent regional indicator status is provided with a # symbol to define these species on the data form.

Source: *National List of Plants That Occur In Wetlands: Northwest (Region 9)*. U.S. Fish and Wildlife Service Biological Report 88 (26.9). 89 pp.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: DOC-Thurston City/County: Thurston Sampling Date: 7-6-11

Applicant/Owner: State: WA Sampling Point: 1

Investigator(s): Theresa Dusek Section, Township, Range: S14, T15N, R3W

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? No Are "Normal Circumstances" present? Yes X No

Are Vegetation, Soil, or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' rad)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus latifolia		Y	FACW
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 30' rad)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5' rad)			
1. Phalaris arundinacea		Y	FACW
2. Ranunculus repens		Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 2/2						gsl	
3-16	10 YR 2/1		5Y 5/6				gsl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): _____

Water Table Present? Yes ____ No ____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No ____ Depth (inches): _____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: DOC – Thurston City/County: Thurston Sampling Date: 7-13-2011

Applicant/Owner: State: WA Sampling Point: 2

Investigator(s): Tonya Smith Section, Township, Range: S14, T15N, R3W

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? NO Are "Normal Circumstances" present? Yes X No

Are Vegetation, Soil, or Hydrology naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 30' rad)			
1. Cornus stolonifera	50	Y	FACW
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5' rad)			
1. Urtica dioica	15	Y	FAC
2. Marah oreganus	10	Y	NI
3. Solanum dulcamara	5	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
1/0	10 YR 2/1		N/A				silt loam	mucky

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): Surface

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: DOC - Thurston City/County: Thurston Sampling Date: 3

Applicant/Owner: Tonya Smith State: WA Sampling Point: _____

Investigator(s): _____ Section, Township, Range: S14, T15N, R3W

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer macrophyllum	30		FACU
2.			
3.			
4.			
	_____ = Total Cover		

Sapling/Shrub Stratum (Plot size: _____)			
1. Sambucus racemosa	20		FACU
2.			
3.			
4.			
5.			
	_____ = Total Cover		

Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	_____ = Total Cover		

Woody Vine Stratum (Plot size: _____)			
1. Rubus discolor	70		FACU
2.			
	120 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	_____
FACW species _____	x 2 =	_____
FAC species _____	x 3 =	_____
FACU species _____	x 4 =	_____
UPL species _____	x 5 =	_____
Column Totals: _____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/4		none					

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix F

Wetland Rating Forms – Thurston County Site

Wetland name or number:

WETLAND RATING FORM - WESTERN WASHINGTON

VERSION 2 - OCTOBER 2008 UPDATE TO INCREASE ACCURACY AND REPRODUCIBILITY AMONG USERS
UPDATED OCTOBER 2008 WITH THE NEW WDFW DEFINITIONS FOR PRIORITY HABITATS

Name of wetland (if known): Wetland A - Thurston Co. Site Date of site visit: 7-6-11

Rated by: Theresa R. Dusek Trained by Ecology? Yes X No ___ Date of training: April 2006

SECTION: 11, 14 TOWNSHIP: 15N RANGE: 3W Is S/T/R on DNR website? Yes ✓ No ___ Requested info. plant offsite.

Map of wetland unit: Figure: _____ Estimated size: _____ AHBL Job #: _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I _____ II ✓ III _____ IV _____

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	18
Score for Habitat Functions	24
TOTAL Score for Functions	62

Category based on SPECIAL CHARACTERISTCS of Wetland

I _____ II ____ Does not apply ✓

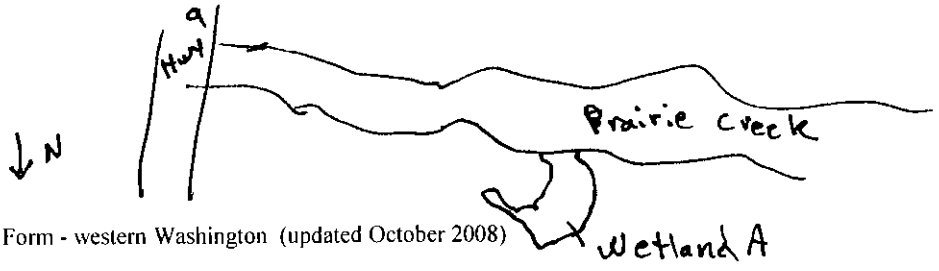
Final Category (choose the "highest" category from above") **II**

Thurston County 200' buffer

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	

Wetland HGM Classification Rating	
Depressional	
Riverine	✓
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	



Wetland name or number: A

Does the wetland being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Critical Habitat or Wetland Functions Requiring Additional Protection (in addition to the protections recommended for its category)	YES	NO
SP1. *Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		✓
SP3. *Does the wetland contain individuals of Priority species listed by the WDFW for the state?*		✓
SP4. *Does the wetland have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		✓

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The Hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number: A

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in question 1-7 apply, and go to Question 8.

1. Are the water levels in the wetland usually controlled by tides (i.e. except during floods)?

   (NO) – go to 2 **YES** – the wetland class is **Tidal Fringe**

   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**

   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. 18).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   (NO) – go to 3 **YES** – The wetland class is **Flats**

   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the wetland **meet both** of the following criteria?

   _____The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8ha) in size;

   _____At least 30% of the open water area is deeper than 6.6 (2 m)?

   (NO) – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

   _____The wetland is on a slope *(slope can be very gradual).*

   _____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

   _____The water leaves the wetland **without being impounded**?

   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*

   (NO) – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

   ✓ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river?.

   ✓ The overbank flooding occurs at least once every two years.

   NOTE: *The Riverine unit can contain depressions that are filled with water when the river is not flooding.*

   NO – go to 6 (YES) – The wetland class is **Riverine**

6. Is the entire wetland in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

   No – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number: A

		Points (enter in box)
D. Depressional and Flats Wetlands		
WATER QUALITY FUNCTIONS - Indicators that wetland unit functions to improve water quality		
D 1	**Does the wetland unit have the potential to improve water quality?** *(see p.38)*	
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) ..... points = 3 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit has an unconstructed, or slightly constricted, surface outlet (permanently flowing) ..... points = 1 • Unit is "flat" depression (Q.7 on key), or in the Flats class, with permanent surface flow **and no obvious natural outlet** and/or outlet is a human-constructed ditch ..... points = 1 Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic). (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area ..... points = 5 • Wetland has persistent, ungrazed vegetation > = ½ of area ..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area ..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area ..... points = 0 Map of Cowardin vegetation classes	
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 Map of hydroperiods	
	Total for D 1 *Add the points in the boxes above*	
D 2	**Does the wetland unit have the opportunity to improve water quality?** *(see p. 44)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland _✓_ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ___ Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	Multiplier _____
◆	TOTAL – Water Quality Functions Multiply the score from D1 by D2 Add score to table on p. 1	

Wetland name or number: A

D 3	**Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?** *(see p. 46)*	
	D 3.1 Characteristics of surface water flows out of the wetland unit: • Unit is a depression with no surface water leaving it (no outlet) ..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a human-constructed ditch ..... points = 1 *(If ditch is not permanently flowing, treat unit as "intermittently flowing")* • Unit has an unconstructed, or slightly constricted, surface outlet (*permanently flowing*)..... points = 0	
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of outlet ..... points = 7 • The wetland is a "headwater wetland" ..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet ..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet ..... points = 3 • Wetland is flat (yes to Q.2 or Q. 7 on key) but has small depressions on the surface that trap water ..... points = 1 • Marks of ponding less than 0.5 ft ..... points = 0	
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of upstream basin contributing surface water to the wetland to the area of the wetland itself.* • The area of the basin is less than 10 times the area of unit ..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit ..... points = 0 • Wetland is in the FLATS class ..... points = 5	
	Total for D 3 *Add the points in the boxes above*	
D 4	**Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion?** *(see p. 49)* Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	Multiplier _____
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	

Wetland name or number: A

R	Riverine and Lacustrine Fringe Wetlands WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	Points (circle one)
R 1	**Does the wetland have the potential to improve water quality?** *(see p.52)*	
	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: • Depressions cover > ¾ area of wetland ..... points = 8 • Depressions cover > ½ area of wetland ..... points = (4) Use depressions > ½ of area of unit to draw polygons on aerial photo or map • Depressions present but cover < ½ area of wetland ..... points = 2 • No depressions present ..... points = 0	4
	R 1.2 Characteristics of the vegetation in the unit (areas with >90% cover at person height): • Trees or shrubs > 2/3 area of the unit ..... points = 8 • Trees or shrubs > 1/3 area of the unit ..... points = 6 • Ungrazed, herbaceous plants > 2/3 area of unit ..... points = 6 • Ungrazed, herbaceous plants > 1/3 area of unit ..... points = 3 • Trees, shrubs, and ungrazed herbaceous < 1/3 area of unit ..... points = 0	6
	Add the points in the boxes above	10
R 2	**Does the wetland unit have the opportunity to improve water quality?** *(see p. 53)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality. ____ Other _____ **YES** multiplier is 2 (**NO**) multiplier is 1	Multiplier 1
	TOTAL – Water Quality Functions Multiply the score from R1 by R2; then *add score to table on p. 1*	10
	Comments: _____	

Wetland name or number: A

R 3	**Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?** *(see p.54)*	
	R 3.1 Characteristics of the overbank storage the unit provides: *Estimate the average width of the wetland unit perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of unit)/ (average width of stream between banks).* • If the ratio is more than 20 ..... points = 9 • If the ratio is between 10 - 20 ..... points = 6 • If the ratio is 5- <10 ..... points = 4 • If the ratio is 1- <5 ..... points = (2) • If the ratio is < 1 ..... points = 1 Aerial photo or map showing polygons of different vegetation types	2
	R 3.2 Characteristics of vegetation that slow down water velocities during floods: *Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description. (Polygons need to have >90% cover at person height NOT Cowardin classes):* • Forest or shrub for > 1/3 area OR herbaceous plants > 2/3 area ..... points = 7 • Forest or shrub for > 1/10 area OR herbaceous plants > 1/3 area ..... points = 4 • Vegetation does not meet above criteria ..... points = 0 Aerial photo or map showing polygons of different vegetation types	7
	Add the points in the boxes above	9
R 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** *(see p.57)* Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* ✓ There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding. ✓ There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding ___ Other ___ *(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)* (YES) multiplier is 2 NO multiplier is 1	Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from R3 by R4; then ***add score to table on p. 1***	18
	Comments: ___	

Wetland name or number: A

H. Water Quality Functions

WATER QUALITY FUNCTIONS - Indicators that the wetland functions to improve water quality

Points (only 1 score per box)

L 1 Does the wetland unit have the potential to improve water quality? *(see p.59)*

L 1.1 Average width of vegetation along the lakeshore (use polygons of Cowardin classes):

- Vegetation is more than 33 ft. (10m) wide ..... points = 6
- Vegetation is more than 16 ft.(5m) wide and < 33 ft..... points = 3
- Vegetation is more than 6 ft. (2m) wide and < 16 ft ..... points = 1
- Vegetation is less than 6 ft. wide..... points = 0

Map of Cowardin classes with widths noted

L 1.2 Characteristics of the vegetation in the wetland: Choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. *The herbaceous plants can be either the dominant form or as an understory form or as an understory in a shrub or forested community These are not Cowardin classes. Area of Cover is total cover in the unit, but it can be in patches. NOTE: Herbaceous does not include aquatic bed..*

- Cover of herbaceous plants is > 90% of the vegetated area..... points = 6
- Cover of herbaceous plants is > 2/3 of the vegetated area..... points = 4
- Cover of herbaceous plants is > 1/3 of the vegetated area..... points = 3
- Other vegetation that is not aquatic bed or herbaceous covers > 2/3 unit ..... points = 3
- Other vegetation that is not aquatic bed in > 1/3 vegetated area..... points = 1
- Aquatic bed vegetation and open water cover > 2/3 of the unit..... points = 0

Map with polygons of cover of vegetation types

Add the points in the boxes above ____

L 2 Does the wetland have the opportunity to improve water quality? *(see p.61)*

Answer YES if you know or believe there are pollutants in the lake water, or polluted surface water flowing through the unit to the lake. *Note which of the following conditions provide the sources of pollutant. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.*

____ Wetland is along the shores of a lake or reservoir that does not meet water quality standards

____ Grazing in the wetland or within 150 ft

____ Polluted water discharges to wetland along upland edge

____ Tilled fields or orchards within 150 ft. of wetland

____ Residential or urban areas are within 150 ft. of wetland

____ Parks with grassy areas that are maintained, ballfields, golf courses (all within 150 ft. of lake shore)

____ Power boats with gasoline or diesel engines use the lake

____ Other _____

YES multiplier is 2 **NO** multiplier is 1

Multiplier ____

◆ **TOTAL – Water Quality Functions** Multiply the score from L1 by L2; then ***add score to table on p. 1*** ____

Comments: _____

Wetland name or number: A

		Points (circle one)
L. Lake-fringe Wetlands **HYDROLOGIC FUNCTIONS** - Indicators that wetland unit functions to reduce shoreline erosion		
L 3	**Does the wetland unit have the potential to reduce shoreline erosion?** *(see p.62)*	
	L 3.1 Distance along the shore and average width of Cowardin classes along the lakeshore (**do not** include aquatic bed): *(choose the highest scoring description that matches conditions in the wetland)* • >3/4 of distance is shrubs or forest at least 33 ft. (10m) wide ..... points = 6 • >3/4 of distance is shrubs or forest at least 6 ft. (2m) wide. ..... points = 4 • >1/4 of distance is shrubs or forest at least 33 ft. (10m) wide. ..... points = 4 • Vegetation is at least 6 ft. (2m) wide (any type except aquatic bed) ..... points = 2 • Vegetation is less than 6 ft. (2m) wide (any type except aquatic bed) ..... points = 0 Use aerial photo or map with Cowardin vegetation classes	
	Record the points in the boxes above	
L 4	**Does the wetland unit have the opportunity to reduce erosion?** *(see p. 63)* Are there features along the shore that will be impacted if the shoreline erodes? *Note which of the following conditions apply.* ____ There are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion. ____ There are undisturbed natural resources along the upland edge of the wetland (e.g. mature forests, other wetlands) that can be damaged by shoreline erosion. ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	Multiplier _____
◆	**TOTAL – Hydrologic Functions** Multiply the score from L3 by L4; then ***add score to table on p. 1***	
	Comments: _____	

Wetland name or number: A

S Slope Wetlands
WATER QUALITY FUNCTIONS – Indicators that the wetland unit functions to improve water quality

Points (only 1 score per box)

S 1 Does the wetland have the potential to improve water quality? *(see p.64)*

S 1.1 Characteristics of average slope of wetland:

- Slope is 1% or less *(a 1% slope has a 1 ft. vertical drop in elevation for every 100 ft. horizontal distance)* .... points = 3
- Slope is 1% - 2% .... points = 2
- Slope is 2% - 5%. .... points = 1
- Slope is greater than 5% .... points = 0

S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*).
YES = 3 points **NO** = 0 points

S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.*

- Dense, uncut, herbaceous vegetation > 90% of the wetland area .... points = 6
- Dense, uncut, herbaceous vegetation > ½ of area .... points = 3
- Dense, woody, vegetation > ½ of area .... points = 2
- Dense, uncut, herbaceous vegetation > ¼ of area .... points = 1
- Does not meet any of the criteria above for vegetation .... points = 0

Aerial photo or map with vegetation polygons

Total for S 1 *Add the points in the boxes above*

S 2 Does the wetland unit have the opportunity to improve water quality? *(see p. 67)*

Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.*

____ Grazing in the wetland or within 150 ft
____ Untreated stormwater discharges to wetland
____ Tilled fields, logging, or orchards within 150 ft. of wetland
____ Residential, urban areas, golf courses are within 150 ft. upslope of wetland
____ Other ____________________

YES multiplier is 2 **NO** multiplier is 1

Multiplier
______

◆ **TOTAL – Water Quality Functions** Multiply the score from S1 by S2; then *add score to table on p. 1*

Comments: ____________________

Wetland name or number: A

A

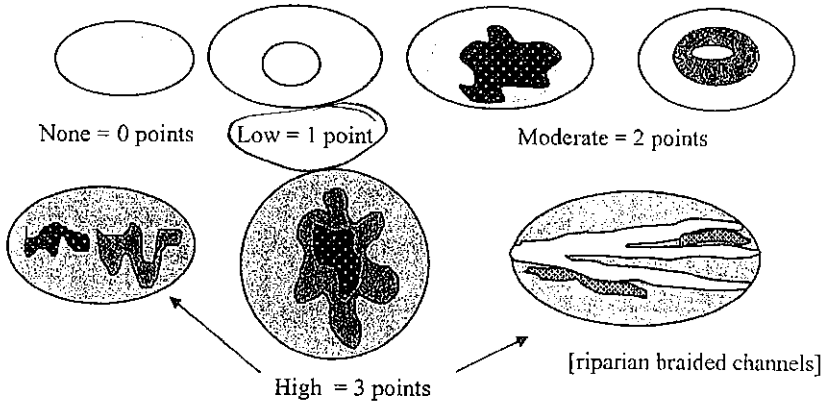
	S 3 Slope Wetlands **HYDROLOGIC FUNCTIONS** - Indicators that wetland functions to reduce flooding and stream erosion.	Points (only if wetland is slope)
S 3	**Does the wetland unit have the <u>potential</u> to reduce flooding and stream erosion?** *(see p.68)*	
	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms: *Choose the points appropriate for the description that best fits conditions in the wetland. (stems of plants should be thich enough (usually >1/8 inch), or dense enough, to remain erect during surface flows)* • Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland: ..... points = 6 • Dense, uncut, **rigid** vegetation> 1/2 area of wetland..... points = 3 • Dense, uncut, **rigid** vegetation > 1/4 area..... points = 1 • More than 1/4 of area is grazed, mowed, tilled, or vegetation is not rigid ..... points = 0	
	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows. The slope wetland has small surface depressions that can retain water over at least 10% of its area. **YES** = 2 points **NO** = 0 points	
	Add the points in the boxes above	
S 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** *(see p. 70)* Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* ____ Wetland has surface runoff that drains to a river or stream that has flooding problems ____ Other _____ *(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)* **YES** multiplier is 2 **NO** multiplier is 1	Multiplier _____
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from S3 by S4; then ***add score to table on p. 1***	
	Comments: _____	

Wetland name or number: A

	These questions apply to wetlands of all HGM classes.	Points (circle one)
	HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat.	
H 1	**Does the wetland unit have the potential to provide habitat for many species?**	
	H 1.1 Vegetation structure *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if the unit is smaller than 2.5 acres.* ___ Aquatic Bed ___ Emergent plants __✓__ Scrub/shrub (areas where shrubs have > 30% cover) __✓__ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* __✓__ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon Add the number of vegetation types that qualify. If you have: 4+ structures.....points = 4 3 structures.....points = 2 2 structures.....points = 1 1 structures.....points = 0 Map of Cowardin vegetation classes	2
	H 1.2 Hydroperiods *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated — 4 or more types present points = 3 __✓__ Seasonally flooded or inundated — 3 types present.....points = 2 ___ Occasionally flooded or inundated — 2 types present.....points = 1 ___ Saturated only — 1 type present .....points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland __✓__ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland ..... = 2 points** ___ **Freshwater tidal wetland ..... = 2 points** Map of hydroperiods	1
	H 1.3 Richness of Plant Species *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = (1) List species below (optional): < 5 species ..... points = 0 _____ _____ _____ _____	1

Wetland name or number: A

H 1.4 Interspersion of Habitats *(see p. 76)*:
Decided from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or class and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".

Map of Cowardin vegetation classes

1

H 1.5 Special Habitat Features *(see p. 77)*:
Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

- ✓ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long)
- ___ Standing snags (diameter at the bottom > 4 inches) in the wetland
- ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m)
- ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown)
- ✓ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)
- ✓ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in the early printing of the manual on page 78 is an error.

3

H 1 TOTAL Score – potential for providing habitat *Add the points in the column above* 8

Comments: _____

Wetland name or number: A

H 2 Does the wetland have the opportunity to provide habitat for many species?

H 2.1 Buffers *(see P. 80)*:

Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".

____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of the buffer. (relatively undisturbed also means no grazing, no landscaping, no daily human use). ..... **points = (5)**

____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4**

____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4**

____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3**

____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3**

If buffer does not meet any of the three criteria above:

____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2**

____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2**

____ Heavy grazing in buffer ..... **points = 1**

____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0**

____ Buffer does not meet any of the criteria above ..... **points = 1**

[redacted]

5

H 2.2 Corridors and Connections *(see p. 81)*

H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).*

YES = (X) **points** (go to H 2.3) **NO** = go to H 2.2.2

H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above?

YES = (2) **points** (go to H 2.3) **NO** = go to H 2.2.3

H. 2.2.3 Is the wetland:

- Within 5 mi (8km) of a brackish or salt water estuary OR
- Within 3 miles of a large field or pasture (> 40 acres) OR
- Within 1 mile of a lake greater than 20 acres?

YES = 1 point **NO** = 0 points

X

2

Total for page 7

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)***

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
____**Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
____**Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
__✓__**Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
__✓__**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
__✓__**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
____**Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
__✓__**Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
____**Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*
____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
__✓__**Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are ≥ 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point**

No habitats = **0 points**

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4.

4

Wetland name or number: A

	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits* *(see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. ..... points = 3 • The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3 • There is at least 1 wetland within 1/2 mile ..... points = 2 • There are no wetlands within 1/2 mile ..... points = 0	5
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	18 16
	TOTAL for H 1 from page 14	8
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	24

Wetland name or number: A

A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

Wetland Type. Check if any of the questions apply to the wetland. Circle the Category when the appropriate criteria are met.	CATEGORY
SC1 **Estuarine wetlands?** *(see p.86)* Does the wetland meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. **YES** = Go to SC 1.1 **NO** _____	
SC 1.1 Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES** = Category I **NO** = go to SC 1.2	**Cat. 1**
SC 1.2 Is the wetland unit at least 1 acre in size and **meets at least two** of the following conditions? **YES** = Category I **NO** = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2 **Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ **YES** _____ Contact WNHP/DNR (see p. 87) and go to SC 2.2 **NO** _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? **YES** = Category 1 **NO** _____not a Heritage Wetland	**Cat I**

Wetland name or number: A

SC3 **Bogs** *(see p. 87)*

Does the wetland unit (**or any part of the unit**) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer yes you will still need to rate the wetland based on its function.***

1. Does the wetland have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)?

   YES = go to question 3 (NO) = go to question 2

2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond?

   YES = go to question 3 (NO) = is not a bog for purpose of rating

3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?

   YES = Is a bog for purpose of rating **NO** = go to question 4

   NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hold dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.

4. Is the wetland forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*?

   YES = Category I **NO** = Is not a bog for purpose of rating

Cat. I

SC4 **Forested Wetlands** *(see p. 96)*

Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats?. *If you answer yes you will still need to rate the wetland based on its function.*

___ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more).

NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The WDFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.

___ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.

YES = Category I (NO) ___ not a forested wetland with special characteristics

Cat. I

Wetland name or number: A

SC5 **Wetlands in Coastal Lagoons** *(see p. 91)*

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

____ The wetland lies in a depressional adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks gravel banks, shingle, or, less frequently, rocks

____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)*

YES = Go to SC 5.1 **NO** ✓ not a wetland in a coastal lagoon

SC 5.1 Does the wetland meet all of the following three conditions?

____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).

____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland.

____ The wetland is larger than 1/10 acre (4350 square ft.)

YES = Category I **NO** = Category II

Cat. I

Cat. II

SC6 **Interdunal Wetlands** *(see p. 93)*

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?

YES = Go to SC 6.1 **NO** ✓ not an interdunal wetland for rating

If you answer yes you will still need to rate the wetland based on its functions.

In practical terms that means the following geographic areas:

- Long Beach Peninsula -- lands west of SR 103
- Grayland-Westport -- lands west of SR 105
- Ocean Shores-Copalis – lands west of SR 115 and SR 109

SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger?

YES = Category II **NO** = go to SC 6.2

SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?

YES = Category III

Cat. II

Cat. III

Wetland name or number:

WETLAND RATING FORM - WESTERN WASHINGTON

VERSION 2 - OCTOBER 2008 UPDATE TO INCREASE ACCURACY AND REPRODUCIBILITY AMONG USERS
UPDATED OCTOBER 2008 WITH THE NEW WDFW DEFINITIONS FOR PRIORITY HABITATS

Name of wetland (if known): Wetland B - Thurston Date of site visit: 7-13-2011

Rated by: ~~Theresa R. Dusek~~ Tonya Smith Trained by Ecology? Yes ~~X~~ No X Date of training: ~~April 2006~~

SECTION: 15, 14 TOWNSHIP: 15N RANGE: 3W Is S/T/R on DNR website? Yes ✓ No Requested info., plant offsite

Map of wetland unit: Figure: _____ **Estimated size:** _____ AHBL Job #: _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ✓ **II** _____ **III** _____ **IV** _____

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	28
Score for Hydrologic Functions	18
Score for Habitat Functions	29
TOTAL Score for Functions	75

Category based on SPECIAL CHARACTERISTCS of Wetland

I _____ **II** _____ **Does not apply** ✓

Final Category (choose the "highest" category from above") **I**

Summary of basic information about the wetland unit

Wetland Unit has Special characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	
Riverine	X
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

SP1. *Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		
SP3. *Does the wetland contain individuals of Priority species listed by the WDFW for the state?*		
SP4. *Does the wetland have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in question 1-7 [illegible] go to Question 8.

1. Are the water levels in the wetland usually controlled by tides (i.e. except during floods)?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   YES – Freshwater Tidal Fringe (NO) – **Saltwater Tidal Fringe (Estuarine)**

   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. 18).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   (NO) – go to 3 **YES** – The wetland class is **Flats**

   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the wetland **meet both** of the following criteria?

   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8ha) in size;

   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?

   (NO) – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

   _____ The wetland is on a slope *(slope can be very gradual)*.

   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

   _____ The water leaves the wetland **without being impounded**?

   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*

   (NO) – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

   X The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river?.

   Y The overbank flooding occurs at least once every two years.

   NOTE: *The Riverine unit can contain depressions that are filled with water when the river is not flooding.*

   NO – go to 6 (YES) – The wetland class is **Riverine**

6. Is the entire wetland in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

   (NO) go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

   (No) go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number:

D 1	**Does the wetland unit have the potential to improve water quality?** *(see p.38)*	
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) ..... points = 3 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit has an unconstructed, or slightly constricted, surface outlet (permanently flowing) ..... points = 1 • Unit is "flat" depression (Q.7 on key), or in the Flats class, with permanent surface flow **and no obvious natural outlet** and/or outlet is a human-constructed ditch..... points = 1	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic). (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = ½ of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0	
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0	
	Total for D 1 *Add the points in the boxes above*	
D 2	**Does the wetland unit have the opportunity to improve water quality?** *(see p. 44)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	Multiplier _____
◆	TOTAL – Water Quality Functions Multiply the score from D1 by D2 Add score to table on p. 1	

Wetland name or number:

D 3	**Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?** *(see p.46)*	
	D 3.1 Characteristics of surface water flows out of the wetland unit: • Unit is a depression with no surface water leaving it (no outlet) ..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a human-constructed ditch ..... points = 1 *(If ditch is not permanently flowing, treat unit as "intermittently flowing")* • Unit has an unconstructed, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 0	
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of outlet ..... points = 7 • The wetland is a "headwater wetland" ..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet ..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet ..... points = 3 • Wetland is flat (yes to Q.2 or Q. 7 on key) but has small depressions on the surface that trap water ..... points = 1 • Marks of ponding less than 0.5 ft ..... points = 0	
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of upstream basin contributing surface water to the wetland to the area of the wetland itself.* • The area of the basin is less than 10 times the area of unit ..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit ..... points = 0 • Wetland is in the FLATS class ..... points = 5	
	Total for D 3 *Add the points in the boxes above*	
D 4	**Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion?** *(see p. 49)* Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	Multiplier _____
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then *add score to table on p. 1*	

Wetland name or number:

		Points
R 1	**Does the wetland have the potential to improve water quality?** *(see p.52)*	
	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: • Depressions cover > ¾ area of wetland ..... points = 8 • Depressions cover > ½ area of wetland ..... points = 4 If depressions cover > 1/2 of area of unit draw polygons on aerial photo or map • Depressions present but cover < ½ area of wetland ..... points = 2 • No depressions present ..... points = 0	8
	R 1.2 Characteristics of the vegetation in the unit (areas with >90% cover at person height): • Trees or shrubs > 2/3 area of the unit ..... points = 8 • Trees or shrubs > 1/3 area of the unit ..... points = 6 • Ungrazed, herbaceous plants > 2/3 area of unit ..... points = 6 • Ungrazed, herbaceous plants > 1/3 area of unit ..... points = 3 • Trees, shrubs, and ungrazed herbaceous < 1/3 area of unit ..... points = 0	6
	Add the points in the boxes above	14
R 2	**Does the wetland unit have the opportunity to improve water quality?** *(see p. 53)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ___ Residential, urban areas, golf courses are within 150 ft. of wetland ___ The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality. ___ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	Multiplier 2
◆	**TOTAL – Water Quality Functions** Multiply the score from R1 by R2; then *add score to table on p. 1*	28
	Comments: _____	

Wetland name or number:

R 3	**Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?** *(see p.54)*	
	R 3.1 Characteristics of the overbank storage the unit provides: *Estimate the average width of the wetland unit perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of unit)/ (average width of stream between banks).* • If the ratio is more than 20 ..... points = 9 • If the ratio is between 10 - 20 ..... points = 6 • If the ratio is 5- <10 ..... points = 4 • If the ratio is 1- <5 ..... points = 2 • If the ratio is < 1 ..... points = 1 [redacted]	2
	R 3.2 Characteristics of vegetation that slow down water velocities during floods: *Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description. (Polygons need to have >90% cover at person height NOT Cowardin classes):* • Forest or shrub for > 1/3 area OR herbaceous plants > 2/3 area ..... points = 7 • Forest or shrub for > 1/10 area OR herbaceous plants > 1/3 area ..... points = 4 • Vegetation does not meet above criteria ..... points = 0 [redacted]	7
	Add the points in the boxes above	9
R 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** *(see p.57)* Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* Y There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding. Y There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding ___ Other _____ *(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)* **YES** multiplier is 2 **NO** multiplier is 1	Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from R3 by R4; then ***add score to table on p. 1***	18
	Comments: _____	

Wetland name or number:

		Points
L 1	**Does the wetland unit have the potential to improve water quality?** *(see p.59)*	
	L 1.1 Average width of vegetation along the lakeshore (use polygons of Cowardin classes): • Vegetation is more than 33 ft. (10m) wide ..... points = 6 • Vegetation is more than 16 ft.(5m) wide and < 33 ft..... points = 3 • Vegetation is more than 6 ft. (2m) wide and < 16 ft ..... points = 1 • Vegetation is less than 6 ft. wide..... points = 0	
	L 1.2 Characteristics of the vegetation in the wetland: Choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. *The herbaceous plants can be either the dominant form or as an understory form or as an understory in a shrub or forested community These are not Cowardin classes. Area of Cover is total cover in the unit, but it can be in patches. NOTE: Herbaceous does not include aquatic bed..* • Cover of herbaceous plants is > 90% of the vegetated area..... points = 6 • Cover of herbaceous plants is > 2/3 of the vegetated area..... points = 4 • Cover of herbaceous plants is > 1/3 of the vegetated area..... points = 3 • Other vegetation that is not aquatic bed or herbaceous covers > 2/3 unit..... points = 3 • Other vegetation that is not aquatic bed in > 1/3 vegetated area..... points = 1 • Aquatic bed vegetation and open water cover > 2/3 of the unit..... points = 0	
	Add the points in the boxes above	
L 2	**Does the wetland have the opportunity to improve water quality?** *(see p.61)* Answer YES if you know or believe there are pollutants in the lake water, or polluted surface water flowing through the unit to the lake. *Note which of the following conditions provide the sources of pollutant. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Wetland is along the shores of a lake or reservoir that does not meet water quality standards ____ Grazing in the wetland or within 150 ft ____ Polluted water discharges to wetland along upland edge ____ Tilled fields or orchards within 150 ft. of wetland ____ Residential or urban areas are within 150 ft. of wetland ____ Parks with grassy areas that are maintained, ballfields, golf courses (all within 150 ft. of lake shore) ____ Power boats with gasoline or diesel engines use the lake ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	Multiplier _____
◆	**TOTAL – Water Quality Functions** Multiply the score from L1 by L2; then ***add score to table on p. 1***	
	Comments: _____	

Wetland name or number:

		Points
L 3	**Does the wetland unit have the potential to reduce shoreline erosion?** *(see p.62)*	
	L 3.1 Distance along the shore and average width of Cowardin classes along the lakeshore (**do not** include aquatic bed): *(choose the highest scoring description that matches conditions in the wetland)* • >3/4 of distance is shrubs or forest at least 33 ft. (10m) wide ..... points = 6 • >3/4 of distance is shrubs or forest at least 6 ft. (2m) wide. ..... points = 4 • >1/4 of distance is shrubs or forest at least 33 ft. (10m) wide. ..... points = 4 • Vegetation is at least 6 ft. (2m) wide (any type except aquatic bed) ..... points = 2 • Vegetation is less than 6 ft. (2m) wide (any type except aquatic bed) ..... points = 0 [redacted]	
	Record the points in the boxes above	
L 4	**Does the wetland unit have the opportunity to reduce erosion?** *(see p. 63)* Are there features along the shore that will be impacted if the shoreline erodes? *Note which of the following conditions apply.* ____ There are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion. ____ There are undisturbed natural resources along the upland edge of the wetland (e.g. mature forests, other wetlands) that can be damaged by shoreline erosion. ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	Multiplier _____
◆	**TOTAL – Hydrologic Functions** Multiply the score from L3 by L4; then ***add score to table on p. 1***	
	Comments: _____	

Wetland name or number:

		Points
S 1	**Does the wetland have the potential to improve water quality?** *(see p.64)*	
	S 1.1 Characteristics of average slope of wetland: • Slope is 1% or less *(a 1% slope has a 1 ft. vertical drop in elevation for every 100 ft. horizontal distance)* ..... points = 3 • Slope is 1% - 2% ..... points = 2 • Slope is 2% - 5%. ..... points = 1 • Slope is greater than 5% ..... points = 0	
	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*). **YES** = 3 points **NO** = 0 points	
	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* • Dense, uncut, herbaceous vegetation > 90% of the wetland area ..... points = 6 • Dense, uncut, herbaceous vegetation > ½ of area ..... points = 3 • Dense, woody, vegetation > ½ of area. ..... points = 2 • Dense, uncut, herbaceous vegetation > ¼ of area ..... points = 1 • Does not meet any of the criteria above for vegetation ..... points = 0	
	Total for S 1 *Add the points in the boxes above*	
S 2	**Does the wetland unit have the opportunity to improve water quality?** *(see p. 67)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields, logging, or orchards within 150 ft. of wetland ____ Residential, urban areas, golf courses are within 150 ft. upslope of wetland ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	Multiplier _____
◆	**TOTAL – Water Quality Functions** Multiply the score from S1 by S2; then ***add score to table on p. 1***	
	Comments: _____	

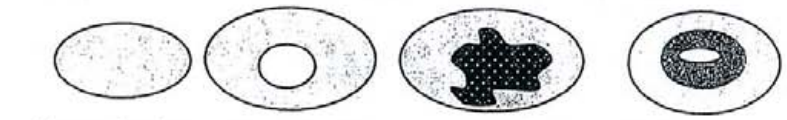
S	**Slope Wetlands** — **HYDROLOGIC FUNCTIONS** – Indicators that wetland functions to reduce flooding and stream erosion	Points (circle one)
S 3	**Does the wetland unit have the <u>potential</u> to reduce flooding and stream erosion?** *(see p.68)*	
	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms: *Choose the points appropriate for the description that best fits conditions in the wetland. (stems of plants should be thich enough (usually >1/8 inch), or dense enough, to remain erect during surface flows)* • Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland: ..... points = 6 • Dense, uncut, **rigid** vegetation> 1/2 area of wetland..... points = 3 • Dense, uncut, **rigid** vegetation > 1/4 area..... points = 1 • More than 1/4 of area is grazed, mowed, tilled, or vegetation is not rigid ..... points = 0	
	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows. The slope wetland has small surface depressions that can retain water over at least 10% of its area. **YES** = 2 points **NO** = 0 points	
	Add the points in the boxes above	
S 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** *(see p. 70)* Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* ____ Wetland has surface runoff that drains to a river or stream that has flooding problems ____ Other _____ *(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)* **YES** multiplier is 2 **NO** multiplier is 1	Multiplier _____
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from S3 by S4; then ***add score to table on p. 1***	
	Comments: _____	

Wetland name or number:

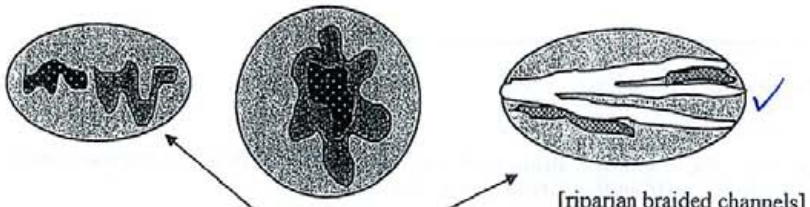
		Points
H 1	**Does the wetland unit have the potential to provide habitat for many species?**	
	H 1.1 Vegetation structure *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if the unit is smaller than 2.5 acres.* X Aquatic Bed Y Emergent plants X Scrub/shrub (areas where shrubs have > 30% cover) X Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* X The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon Add the number of vegetation types that qualify. If you have: 4+ structures.....points = (4) 3 structures.....points = 2 2 structures.....points = 1 1 structures.....points = 0 [redacted]	4
	H 1.2 Hydroperiods *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* X Permanently flooded or inundated X Seasonally flooded or inundated X Occasionally flooded or inundated X Saturated only X Permanently flowing stream or river in, or adjacent to, the wetland X Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** 4 or more types present points = (3) 3 types present.....points = 2 2 types present.....points = 1 1 type present .....points = 0 [redacted]	3
	H 1.3 Richness of Plant Species *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft² *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = (2) 5 – 19 species..... points = 1 < 5 species ..... points = 0 List species below (optional): _____ _____ _____ _____	2

Wetland name or number:

H 1.4 Interspersion of Habitats *(see p. 76)*:
Decided from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or class and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [riparian braided channels]

3

Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".

[redacted]

H 1.5 Special Habitat Features *(see p. 77)*:
Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

- X Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long)
- X Standing snags (diameter at the bottom > 4 inches) in the wetland
- ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m)
- X Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown)
- X At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)
- ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in the early printing of the manual on page 78 is an error.

4

H 1 TOTAL Score – potential for providing habitat *Add the points in the column above* 16

Comments: _____

Wetland name or number:

H 2 Does the wetland have the opportunity to provide habitat for many species?

H 2.1 Buffers *(see P. 80)*:

Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".

___ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of the buffer. (relatively undisturbed also means no grazing, no landscaping, no daily human use). ..... **points = 5**

___ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4**

___ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4**

___ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3**

___ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3**

2

If buffer does not meet any of the three criteria above:

___ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2**

X ___ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2**

___ Heavy grazing in buffer ..... **points = 1**

___ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0**

___ Buffer does not meet any of the criteria above ..... **points = 1**

[redacted]

H 2.2 Corridors and Connections *(see p. 81)*

H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).*

YES = **4 points** (go to H 2.3) **NO** = go to H 2.2.2

H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a lake-fringe wetland**, if it does not have an undisturbed corridor as in the question above?

YES = **2 points** (go to H 2.3) **NO** = go to H 2.2.3

2

H. 2.2.3 Is the wetland:

- Within 5 mi (8km) of a brackish or salt water estuary OR
- Within 3 miles of a large field or pasture (> 40 acres) OR
- Within 1 mile of a lake greater than 20 acres?

YES = 1 point **NO** = 0 points

Total for page 4

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)***

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
____**Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
____**Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
____**Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
__Y__ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
__Y__**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
____**Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
__Y__**Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*
____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
____**Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point**

No habitats = **0 points**

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4.

4

Wetland name or number:

	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits* *(see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = (5) • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. ..... points = 3 • The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3 • There is at least 1 wetland within 1/2 mile ..... points = 2 • There are no wetlands within 1/2 mile ..... points = 0	5
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	13
	TOTAL for H 1 from page 14	16
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	29

Wetland name or number:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

SC1 Estuarine wetlands? *(see p.86)*

Does the wetland meet the following criteria for Estuarine wetlands?

___ The dominant water regime is tidal,
___ Vegetated, and
___ With a salinity greater than 0.5 ppt. N/A

YES = Go to SC 1.1 **NO** X

SC 1.1 Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **Cat. 1**

YES = Category I **(NO)** N/A = go to SC 1.2

SC 1.2 Is the wetland unit at least 1 acre in size and **meets at least two** of the following conditions?

YES = Category I **NO** = Category II

___ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. **Cat. I** **Cat. II** **Dual Rating I/II**

___ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland.

___ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.

SC2 Natural Heritage Wetlands *(see p. 87)* **Cat I**

Natural Heritage wetlands have been identified by the Washington Natural heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.

SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)*

S/T/R information from Appendix D ___✓___ or accessed from WNHP/DNR web site ✓

YES ✓ Contact WNHP/DNR (see p. 87) and go to SC 2.2 **NO** ___

SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?

YES = Category 1 **NO** ✓ not a Heritage Wetland

Wetland name or number:

SC3 **Bogs** *(see p. 87)*

Does the wetland unit (**or any part of the unit**) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer yes you will still need to rate the wetland based on its function.***

1. Does the wetland have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)?

   YES = go to question 3 **NO** = go to question 2

2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond?

   YES = go to question 3 **NO** = is not a bog for purpose of rating

3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?

   YES = Is a bog for purpose of rating **NO** = go to question 4

   NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hold dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.

4. Is the wetland forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*?

   YES = Category I **NO** = Is not a bog for purpose of rating

Cat. I

SC4 **Forested Wetlands** *(see p. 96)*

Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats?. *If you answer yes you will still need to rate the wetland based on its function.*

___ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more).

NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The WDFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.

___ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.

YES = Category I **NO** X not a forested wetland with special characteristics

Cat. I

SC5 Wetlands in Coastal Lagoons *(see p. 91)*

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

____ The wetland lies in a depressional adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks gravel banks, shingle, or, less frequently, rocks

____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)*

YES = Go to SC 5.1 **NO** ✓ not a wetland in a coastal lagoon

SC 5.1 Does the wetland meet all of the following three conditions?

____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).

____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland.

____ The wetland is larger than 1/10 acre (4350 square ft.)

YES = Category I **NO** = Category II

Cat. I

Cat. II

SC6 Interdunal Wetlands *(see p. 93)*

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?

YES = Go to SC 6.1 **NO** ✓ not an interdunal wetland for rating

If you answer yes you will still need to rate the wetland based on its functions.

In practical terms that means the following geographic areas:

- Long Beach Peninsula -- lands west of SR 103
- Grayland-Westport -- lands west of SR 105
- Ocean Shores-Copalis – lands west of SR 115 and SR 109

SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger?

YES = Category II **NO** = go to SC 6.2

SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?

YES = Category III

Cat. II

Cat. III

APPENDIX D

Greenhouse Gas Emissions Worksheets

WA State Dept of Corrections Reception Center EIS - Bremerton Site
Section I: Buildings

Type	Vehicle Miles Traveled (VMT)	Square Feet (in thousands of square feet)	Emissions Per Thousand Square Feet (MTCO2e) Embodied	Energy**	Transportation	Lifespan Emissions (MTCO2e)
Public Order and Safety ...1 Story nonsecured.....		147	4	899	-	**132,521**
Public Order and Safety ..2 Story Housing.....		209	3	899	-	**188,833**
Vacant-..Bus Barn.....		9.9	2	162	-	**1,626**
Transportation Related (based on project VMT).....	6,329,200		-	-	-	**178,978**

Section II: Pavement on ROW/Private Access/Surface Parking.....

Pavement - Parking Lot.....		370.40				**6,297**

Total Project Emissions: **508,254**

Assumptions:

Main Building (from Westside Reception Outline Specifications)

Exterior - Precast Structural/Architectural Concrete
No exterior windows throughout building
Floor/Roof - Precast Hollow-core Concrete Planks
Interior Cells: Concrete masonry (60% of building sq ft)
Structural Steel joist framing, columns, beams
Concrete Slab Foundation

Bus Barn
Sheet metal exterior, roof
Pre-fabricated building

Transportation
Based on Heffron VMT estimates, using EPA MPG rating an CO2e emissions rates for vehicles

Parking Lot
Source; AHBL, Opinion of Probable Cost - Predesign

**Energy
Building would be constructed to LEED Silver Rating but no deductions accounted in GHG energy determinations

Modified by ENVIRON 08/21/2011

Embodied Emissions Worksheet

Section I: Buildings

Principal Activity (Commercial)	# thousand sq feet/ unit or building	Life span related embodied GHG missions (MTCO2e/ unit)	Life span related embodied GHG missions (MTCO2e/ thousand square feet) - See calculations in table below
Public Order and Safety	15.5	66	4

Section II: Pavement.....

All Types of Pavement.....			17	**NonRoad Maintenance**

	Columns and Beams ENVIRON note	Intermediate Floors	Exterior Walls	Windows/Glazing	Interior Walls	Roofs	Foundations		
Average GWP (lbs CO2e/sq ft): Seattle, Low Rise Commercial Building: ***Enter Values***	0.6	1.2	2.5	8.1	2.7	2.8	1.7	***From ATHENA ECOCALCULATOR***	
Average Materials in a 1 story concrete building (Based on ENVIRON calculations)	146,876	146,876	23,040	-	146,876	146,876	146,876	Total Embodied Emissions (MTCO2e)	Total Embodied Emissions (MTCO2e/ thousand sq feet)
MTCO2e	40.0	79.9	26.1	0.0	179.8	186.5	109.9	622.3	4.2

ENVIRON Calculations

Bldg Type — **1 Story Concrete & Steel**, *Irregular shape*

enter values in shaded box

Values in FEET

Represenative size of blg to match sq ft (approx. 146,782 sq ft non-secured 1 story)

Approximate Blg Material Breakdown

				Bdlg dimensions (L - W)		Wall Ht
146,876	bldg size sq ft	146,876	footprint	146	1006	10
610,544	**new mat. Total**			No. floors	1	
-	**columns & beams**	146,876	ENVIRON note: Athena model calculates GWP based on total area of supported floors and/or roof; not amount of material			
24.1%	**inter. Floors**	146,876	(footprint * no floors)			
3.8%	**ext. walls**	23,040	(based on calc for exterior/glazing below)			
24.1%	**inter walls**	146,876	(varies depending on use/size - see calc below)			
24.1%	**Roofs**	146,876	(typically same as footprint)			
0.0%	**Windows/Glazing**	-	Windows/Glazing			
24.1%	**Foundation**	146,876	Foundation (if available) Wall size; select below			
1		610,544	(not including columns/beams)			

Sources

All data in black text — King County, DNRP. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov; Except ENVIRON Calculations

Residential floorspace per unit — 2001 Residential Energy Consumption Survey (National Average, 2001); Square footage measurements and comparisons; http://www.eia.doe.gov/emeu/recs/sqft-measure.html

Floorspace per building — EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003); Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003; http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls

Average GWP (lbs CO2e/sq ft): Vancouver, Low Rise Building — Athena EcoCalculator

SUPERCEDED by ENVIRON, 2011 — Athena Assembly Evaluation Tool v2.3- Vancouver Low Rise Building; Assembly Average GWP (kg) per square meter; http://www.athenasmi.ca/tools/ecoCalculator/index.html

Lbs per kg 2.20

Square feet per square meter 10.76

Average Materials in a 2,272-square foot single family home — Buildings Energy Data Book: 7.3 Typical/Average Household

NOT USED, ENVIRON 2011 — Materials Used in the Construction of a 2,272-Square-Foot Single-Family Home, 2000; http://buildingsdatabook.eren.doe.gov/?id=view_book_table&TableID=2036&t=xls; See also: NAHB, 2004 Housing Facts, Figures and Trends, Feb. 2004, p. 7.

Average window size — Energy Information Administration/Housing Characteristics 1993

NOT USED, ENVIRON 2011 — Appendix B, Quality of the Data. Pg. 5. ftp://ftp.eia.doe.gov/pub/consumption/residential/rx93hcf.pdf

Pavement Emissions Factors

MTCO2e/thousand square feet of asphalt or concrete pavement — 50 (see below: 17 for nonroad without maintenance)

Interior Walls

Rule of thumb for calculation;

0.1 linear ft of wall material for each 1 sq ft of space x wall height x # floors

OR if partition space known, sum of all wall space: = (linear ft x height) of one wall for each interior partition

146,876 based on 0.1 linear ft

Foundation (Select one calculation)

	Foundation Dimensions (L-W)		Foundation Ht	
	146	1006	0	
If Wall			enter 0 if slab or unknown	
-	total wall area * foundation ht			
If Slab			**If Footings**	
146,876	size of footprint			need cubic yd of concrete

Exterior/Glazing-Window

Tl wall sq ft	Exterior Wall	Glazing/Window	(as decimal)	
23,040	1	0		55%/45% rule of thumb
	-	glazing/windows area		

Embodied GHG Emissions.....Worksheet Background Information

Buildings

Embodied GHG emissions are emissions that are created through the extraction, processing, transportation, construction and disposal of building materials as well as emissions created through landscape disturbance (by both soil disturbance and changes in above ground biomass).

Estimating embodied GHG emissions is new field of analysis; the estimates are rapidly improving and becoming more inclusive of all elements of construction and development.

The estimate included in this worksheet is calculated using average values for the main construction materials that are used to create a typical family home. In 2004, the National Association of Home Builders calculated the average materials that are used in a typical 2,272 square foot single-family household. The quantity of materials used is then multiplied by the average GHG emissions associated with the life-cycle GHG emissions for each material.

This estimate is a rough and conservative estimate; the actual embodied emissions for a project are likely to be higher. For example, at this stage, due to a lack of comprehensive data, the estimate does not include important factors such as landscape disturbance or the emissions associated with the interior components of a building (such as furniture).

King County realizes that the calculations for embodied emissions in this worksheet are rough. For example, the emissions associated with building 1,000 square feet of a residential building will not be the same as 1,000 square feet of a commercial building. However, discussions with the construction community indicate that while there are significant differences between the different types of structures, this method of estimation is reasonable; it will be improved as more data become available.

Additionally, if more specific information about the project is known, King County recommends two online embodied emissions calculators that can be used to obtain a more tailored estimate for embodied emissions: www.buildcarbonneutral.org and www.athenasmi.ca/tools/ecoCalculator/.

Pavement
Four recent life cycle assessments of the environmental impacts of roads form the basis for the per unit embodied emissions of pavement. Each study is constructed in slightly different ways; however, the aggregate results of the reports represent a reasonable estimate of the GHG emissions that are created from the manufacture of paving materials, construction related emissions, and maintenance of the pavement over its expected life cycle. For specifics, see the worksheet.

The four studies, Meil (2001), Park (2003), Stripple (2001) and Treolar (2001) produced total GHG emissions of 4-34 MTCO2e per thousand square feet of finished paving (for similar asphalt and concrete based pavements). This estimate does not including downstream maintenance and repair of the highway. The average (for all concrete and asphalt pavements in the studies, assuming each study gets one data point) is ~17 MTCO2e/thousand square feet.

Three of the studies attempted to thoroughly account for the emissions associated with long term maintenance (40 years) of the roads. Stripple (2001), Park et al. (2003) and Treolar (2001) report 17, 81, and 68 MTCO2e/thousand square feet, respectively, after accounting for maintenance of the roads.

Based on the above discussion, King County makes the conservative estimate that 50 MTCO2e/thousand square feet of pavement (over the development's life cycle) will be used as the embodied emission factor for pavement until better estimates can be obtained. This is roughly equivalent to 3,500 MTCO2e per lane mile of road (assuming the lane is 13 feet wide).

It is important to note that these studies estimate the embodied emissions for roads. Paving that does not need to stand up to the rigors of heavy use (such as parking lots or driveways) would likely use less materials and hence have lower embodied emissions.

Sources:
Meil, J. A Life Cycle Perspective on Concrete and Asphalt Roadways: Embodied Primary Energy and Global Warming Potential. 2006. Available:
http://www.cement.ca/cement.nsf/eee9ec7bbd630126852566c40052107b/6ec79dc8ae03a782852572b90061b914/$FILE/ATTK0WE3/athena%20report%20Feb.%202%202007.pdf

Park, K, Hwang, Y., Seo, S., M.ASCE, and Seo, H. , "Quantitative Assessment of Environmental Impacts on Life Cycle of Highways," Journal of Construction Engineering and Management , Vol 129, January/February 2003, pp 25-31, (DOI: 10.1061/(ASCE)0733-9364(2003)129:1(25)).

Stripple, H. Life Cycle Assessment of Road. A Pilot Study for Inventory Analysis. Second Revised Edition. IVL Swedish Environmental Research Institute Ltd. 2001. Available:
http://www.ivl.se/rapporter/pdf/B1210E.pdf

Treloar, G., Love, P.E.D., and Crawford, R.H. Hybrid Life-Cycle Inventory for Road Construction and Use. Journal of Construction Engineering and Management. P. 43-49. January/February 2004.

Embodied Emissions Worksheet

Section I: Buildings

Principal Activity (Commercial)	# thousand sq feet/ unit or building	Life span related embodied GHG missions (MTCO2e/ unit)	Life span related embodied GHG missions (MTCO2e/ thousand square feet) - See calculations in table below
Public Order and Safety	15.5	51	3

Section II: Pavement.....

All Types of Pavement.....			17	**NonRoad Maintenance**

	Columns and Beams ENVIRON note	Intermediate Floors	Exterior Walls	Windows/Glazing	Interior Walls	Roofs	Foundations		
Average GWP (lbs CO2e/sq ft): Seattle, Low Rise Commercial Building: ***Enter Values***	0.6	1.2	2.5	8.1	2.7	2.8	1.7	***From ATHENA ECOCALCULATOR***	
Average Materials in a 2- story concrete building (Based on ENVIRON calculations)	209,248	209,248	44,400	-	209,248	104,624	104,624	Total Embodied Emissions (MTCO2e)	Total Embodied Emissions (MTCO2e/ thousand sq feet)
MTCO2e	56.9	113.9	50.3	0.0	256.2	132.9	78.3	688.5	3.3

ENVIRON Calculations

Bldg Type

2 Story Concrete & Steel

Irregular shape

Approximate Bldg Material Breakdown

209,248	bldg size sq ft	
672,144	**new mat. Total**	
-	**columns & beams**	
31.1%	**inter. Floors**	
6.6%	**ext. walls**	
31.1%	**inter walls**	
15.6%	**Roofs**	
0.0%	**Windows/Glazing**	
15.6%	**Foundation**	
1		

enter values in shaded box

Values in FEET

Represenative size of blg to match sq ft overestimates roof at 2-story Secured Cells (209,374 sq ft)

		Bdlg dimensions (L - W)		Wall Ht
104,624	footprint	104	1006	10
		No. floors	2	
209,248	ENVIRON note: Athena model calculates GWP based on total area of supported floors and/or roof; not amount of material			
209,248	(footprint * no floors)			
44,400	(based on calc for exterior/glazing below)			
209,248	(varies depending on use/size - see calc below)			
104,624	(typically same as footprint)			
-	Windows/Glazing			
104,624	Foundation (if available) Wall size; select below			
672,144	(not including columns/beams)			

Interior Walls

Rule of thumb for calculation;

0.1 linear ft of wall material for each 1 sq ft of space x wall height x # floors

OR if partition space known, sum of all wall space: = (linear ft x height) of one wall for each interior partition

209,248 based on 0.1 linear ft

Foundation (Select one calculation)

	Foundation Dimensions (L-W)		Foundation Ht		
	104	1006	0		
If Wall			enter 0 if slab or unknown		
-	total wall area * foundation ht				
If Slab				**If Footings**	
104,624	size of footprint				need cubic yd of concrete

Exterior/Glazing-Window

Tl wall sq ft	Exterior Wall	Glazing/Window	(as decimal)	
44,400	1	0		55%/45% rule of thumb
	-	glazing/windows area		

Modified by ENVIRON 08/21/2011

Embodied Emissions Worksheet

Section I: Buildings

Principal Activity (Commercial)	# thousand sq feet/ unit or building	Life span related embodied GHG missions (MTCO2e/ unit)	Life span related embodied GHG missions (MTCO2e/ thousand square feet) - See calculations in table below
Vacant-..Bus Barn.....	9.9	20	2

Section II: Pavement.....

All Types of Pavement.....			17	**NonRoad Maintenance**

	Columns and Beams [ENVIRON note]	Intermediate Floors	Exterior Walls	Windows/Glazing	Interior Walls	Roofs	Foundations		
Average GWP (lbs CO2e/sq ft): Seattle, Low Rise Commercial Building: ***Enter Values***	0.1	1.2	1.9	0.0	0.0	1.7	0.8	***From ATHENA ECOCALCULATOR***	
Average Materials in a pre-fabricated metal building (Based on ENVIRON calculations)	9,999	9,999	4,000	-	-	9,999	9,999	Total Embodied Emissions (MTCO2e)	Total Embodied Emissions (MTCO2e/ thousand sq feet)
MTCO2e	0.4	5.2	3.4	0.0	0.0	7.7	3.6	20.4	2.0

ENVIRON Calculations

Bldg Type — **1 Story Prefabricated Steel Bldg**

enter values in shaded box

Values in FEET

Represenative size of blg to match sq ft

				Bdlg dimensions (L - W)		Wall Ht
9,999	bldg size sq ft	9,999	footprint	99	101	10
43,996	**new mat. Total**			No. floors	1	
-	**columns & beams**	9,999	[ENVIRON note] Athena model calculates GWP based on total area of supported floors and/or roof; not amount of material			
22.7%	**inter. Floors**	9,999	(footprint * no floors)			
9.1%	**ext. walls**	4,000	(based on calc for exterior/glazing below)			
22.7%	**inter walls**	9,999	(varies depending on use/size - see calc below)			
22.7%	**Roofs**	9,999	(typically same as footprint)			
0.0%	**Windows/Glazing**	-	Windows/Glazing			
22.7%	**Foundation**	9,999	Foundation (if available) Wall size; select below			
1		43,996	(not including columns/beams)			

Interior Walls

Rule of thumb for calculation;

0.1 linear ft of wall material for each 1 sq ft of space x wall height x # floors

OR if partition space known, sum of all wall space: = (linear ft x height) of one wall for each interior partition

9,999 based on 0.1 linear ft

Foundation (Select one calculation)

	Foundation Dimensions (L-W)		Foundation Ht		
	99	101	0		
If Wall			enter 0 if slab or unknown		
-	total wall area * foundation ht				
If Slab				**If Footings**	
9,999	size of footprint				need cubic yd of concrete

Exterior/Glazing-Window

Tl wall sq ft	Exterior Wall	Glazing/Window	(as decimal)	
4,000	1	0		55%/45% rule of thumb
-	glazing/windows area			

Modified by ENVIRON 08/21/2011

Energy Emissions Worksheet

Principal Activity (Commercial)	Energy consumption per building per year (million Btu)	Carbon Coefficient for Buildings	MTCO2e per building per year	Floorspace per Building (thousand square feet)	MTCE per thousand square feet per year	MTCO2e per thousand square feet per year	Average Building Life Span	Lifespan Energy Related MTCO2e emissions per unit	Lifespan Energy Related MTCO2e emissions per thousand square feet
Public Order and Safety	1,791.0	0.124	222.7	15.5	14.4	52.7	62.5	13,928	899
Vacant-..Bus Barn.....	294.0	0.124	36.6	14.1	2.6	9.5	62.5	2,286	162

Sources

All data in black text — King County, DNRP. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov

Energy consumption for residential buildings

2007 Buildings Energy Data Book: 6.1 Quad Definitions and Comparisons (National Average, 2001)
Table 6.1.4: Average Annual Carbon Dioxide Emissions for Various Functions
http://buildingsdatabook.eren.doe.gov/
Data also at: http://www.eia.doe.gov/emeu/recs/recs2001_ce/ce1-4c_housingunits2001.html

Energy Data can be updated based on current EAI data

ENVIRON Project specific data:

average floor space per unit

Energy consumption for commercial buildings and Floorspace per building

EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003)
Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls

Note: Data in plum color is found in both of the above sources (buildings energy data book and commercial buildings energy consumption survey).

Carbon Coefficient for Buildings

Buildings Energy Data Book (National average, 2005)
Table 3.1.7. 2005 Carbon Dioxide Emission Coefficients for Buildings (MMTCE per Quadrillion Btu)
http://buildingsdatabook.eere.energy.gov/?id=view_book_table&TableID=2057
Note: Carbon coefficient in the Energy Data book is in MTCE per Quadrillion Btu.
To convert to MTCO2e per million Btu, this factor was divided by 1000 and multiplied by 44/12.

Residential floorspace per unit

2001 Residential Energy Consumption Survey (National Average, 2001)
Square footage measurements and comparisons
http://www.eia.doe.gov/emeu/recs/sqft-measure.html

average lief span of buildings, estimated by replacement time method

	Single Family Homes	Multi-Family Units in Large and Small Buildings	All Residential Buildings	
New Housing Construction, 2001	1,273,000	329,000	1,602,000	
Existing Housing Stock, 2001	73,700,000	26,500,000	100,200,000	
Replacement time:	57.9	80.5	62.5	(national average, 2001)

Note: Single family homes calculation is used for mobile homes as a best estimate life span.
Note: At this time, KC staff could find no reliable data for the average life span of commercial buildings.
Therefore, the average life span of residential buildings is being used until a better approximation can be ascertained.

Sources:

New Housing Construction, 2001 **Quarterly Starts and Completions by Purpose and Design - US and Regions (Excel)**
http://www.census.gov/const/quarterly_starts_completions_cust.xls
See also: http://www.census.gov/const/www/newresconstindex.html

Existing Housing Stock, 2001 **Residential Energy Consumption Survey (RECS) 2001**
Tables HC1:Housing Unit Characteristics, Million U.S. Households 2001
Table HC1-4a. Housing Unit Characteristics by Type of Housing Unit, Million U.S. Households, 2001
Million U.S. Households, 2001
http://www.eia.doe.gov/emeu/recs/recs2001/hc_pdf/housunits/hc1-4a_housingunits2001.pdf

Transportation Emissions Worksheet

Principal Activity (Commercial)	# people/ unit or building	# thousand sq feet/ unit or building	# people or employees/ thousand square feet	vehicle related GHG emissions (metric tonnes CO2e per person per year)	MTCO2e/ year/ unit	MTCO2e/ year/ thousand square feet	Average Building Life Span	Life span transportation related GHG emissions (MTCO2e/ per unit)	Life span transportation related GHG emissions (MTCO2e/ thousand sq feet)
Public Order and Safety	20.2	15.5	1.3	0.0	0.0	0.0	62.5	0	0
Vacant .....Bus Barn.....	0.0	14.1	0.2	0.0	0.0	0.0	62.5	0	0
								NOT USED	**NOT USED**

Sources

All data in black text — King County, DNRP. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov

people/ unit — Estimating Household Size for Use in Population Estimates (WA state, 2000 average)
Washington State Office of Financial Management
Kimpel, T. and Lowe, T. Research Brief No. 47. August 2007
http://www.ofm.wa.gov/researchbriefs/brief047.pdf
Note: This analysis combines Multi Unit Structures in both large and small units into one category; the average is used in this case although there is likely a difference

ENVIRON project specific data
project data estimates from primary data sheets employees
478 employees
1.306010929

Residential floorspace per unit — 2001 Residential Energy Consumption Survey (National Average, 2001)
Square footage measurements and comparisons
http://www.eia.doe.gov/emeu/recs/sqft-measure.html

employees/thousand square feet — Commercial Buildings Energy Consumption Survey commercial energy uses and costs (National Median, 2003)
Table B2 Totals and Medians of Floorspace, Number of Workers, and Hours of Operation for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set1/2003excel/b2.xls

Note: Data for # employees/thousand square feet is presented by CBECS as square feet/employee.
In this analysis employees/thousand square feet is calculated by taking the inverse of the CBECS number and multiplying by 1000.

Vehicle-related GHG emissions - Superceded by ENVIRON

Updated by ENVIRON on *8/30/2011*

Estimate calculated as follows (Washington state, 2006)_

56,531,930,000 2006 Annual WA State Vehicle Miles Traveled
Data was daily VMT. Annual VMT was 365*daily VMT.
http://www.wsdot.wa.gov/mapsdata/tdo/annualmileage.htm

6,395,798 2006 WA state population
http://quickfacts.census.gov/qfd/states/53000.html

8839 vehicle miles per person per year

0.0506 gallon gasoline/mile — gallon gasoline/mile 0.0489
This is the weighted national average fuel efficiency for all cars and 2 axle, 4 wheel light trucks in 2005. This includes pickup trucks, vans and SUVs. The 0.051 gallons/mile used here is the inverse of the more commonly known term "miles/per gallon" (which is 19.75 for these cars and light trucks).
Transportation Energy Data Book. 26th Edition. 2006. Chapter 4: Light Vehicles and Characteristics. Calculations based on weighted average MPG efficiency of cars and light trucks.
http://cta.ornl.gov/data/tedb26/Edition26_Chapter04.pdf
Note: This report states that in 2005, 92.3% of all highway VMT were driven by the above described vehicles.
http://cta.ornl.gov/data/tedb26/Spreadsheets/Table3_04.xls

24.3 lbs CO2e/gallon gasoline — lbs CO2e/g gasoline 19.4
The CO2 emissions estimates for gasoline and diesel include the extraction, transport, and refinement of petroleum as well as their combustion.
Life-Cycle CO2 Emissions for Various New Vehicles. RENew Northfield.
Available: http://renewnorthfield.org/wpcontent/uploads/2006/04/CO2%20emissions.pdf
Note: This is a conservative estimate of emissions by fuel consumption because diesel fuel, with a emissions factor of 26.55 lbs CO2e/gallon was not estimated.

2205

4.93 lbs/metric tonne

vehicle related GHG emissions (metric tonnes CO2e per person per year)

Updated MPG ratings

mpg 2006	% car/truck
22.4	0.553
18	0.447

20.4332 weighted avg mpg

20.37 Use This: Total lbs CO2e/g gasoline
19.4+(19.4*.05)
http://www.epa.gov/otaq/climate/420f05004.htm
Emission Facts: Greenhouse Gas Emissions from a Typical Passenger Vehicle
EPA420-F-05-004 February 2005

annual
6,329,200 Estimated VMT from Heffron Transp. Inc. August 2011

2,861.51 vehicle related GHG emissions (metric tonnes CO2e per year)

average lief span of buildings, estimated by replacement time method — See Energy Emissions Worksheet for Calculations

178,978.18 Lifetime total ghg emissions

Commercial floorspace per unit — EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003)
Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls

Transportation……..……Worksheet Background Information

This section helps estimate the emissions associated with transportation of building occupants. At this time, it is based on average vehicle miles traveled by the average Washington State citizen.

WA State Dept of Corrections Reception Center EIS - Mason County Site
Section I: Buildings

Type	Vehicle Miles Traveled (VMT)	Square Feet (in thousands of square feet)	Emissions Per Thousand Square Feet (MTCO2e) Embodied	Energy**	Transportation	Lifespan Emissions (MTCO2e)
Public Order and Safety ...1 Story nonsecured.....		147	4	899	-	**132,521**
Public Order and Safety ..2 Story Housing.....		209	3	899	-	**188,833**
Vacant-..Bus Barn.....		0.0	2	162	-	**-**
Transportation Related (based on project VMT).....	6,850,470		-	-	-	**193,719**

Section II: Pavement on ROW/Private Access/Surface Parking.....

Pavement - Parking Lot.....		331.20				**5,630**

Total Project Emissions: **520,703**

Assumptions:

Main Building (from Westside Reception Outline Specifications)

Exterior - Precast Structural/Architectural Concrete
No exterior windows throughout building
Floor/Roof - Precast Hollow-core Concrete Planks
Interior Cells: Concrete masonry (60% of building sq ft)
Structural Steel joist framing, columns, beams
Concrete Slab Foundation

Bus Barn
Located off-site

Transportation
Based on Heffron VMT estimates, using EPA MPG rating and CO2e emissions rates for vehicles

Parking Lot
Source; AHBL, Opinion of Probable Cost - Predesign

**Energy
Building would be constructed to LEED Silver Rating but no deductions accounted in GHG energy determinations

Embodied Emissions Worksheet

Section I: Buildings

Principal Activity (Commercial)	# thousand sq feet/ unit or building	Life span related embodied GHG missions (MTCO2e/ unit)	Life span related embodied GHG missions (MTCO2e/ thousand square feet) - See calculations in table below
Public Order and Safety	15.5	66	4

Section II: Pavement.....

All Types of Pavement.....			17	**NonRoad Maintenance**

	Columns and Beams ENVIRON note	Intermediate Floors	Exterior Walls	Windows/Glazing	Interior Walls	Roofs	Foundations		
Average GWP (lbs CO2e/sq ft): Seattle, Low Rise Commercial Building: ***Enter Values***	0.6	1.2	2.5	8.1	2.7	2.8	1.7	***From ATHENA ECOCALCULATOR***	
Average Materials in a 1 story concrete building (Based on ENVIRON calculations)	146,876	146,876	23,040	-	146,876	146,876	146,876	Total Embodied Emissions (MTCO2e)	Total Embodied Emissions (MTCO2e/ thousand sq feet)
MTCO2e	40.0	79.9	26.1	0.0	179.8	186.5	109.9	622.3	4.2

ENVIRON Calculations

Bldg Type			**enter values in shaded box**				
	1 Story Concrete & Steel		Values in FEET				
	Irregular shape		*Represenative size of blg to match sq ft (approx. 146,782 sq ft non-secured 1 story)*				
Approximate Blg Material Breakdown					Bdlg dimensions (L - W)		Wall Ht
	146,876	bldg size sq ft	146,876	footprint	146	1006	10
	610,544	new mat. Total			No. floors	1	
	-	**columns & beams**	146,876	ENVIRON note: Athena model calculates GWP based on total area of supported floors and/or roof; not amount of material			
	24.1%	**inter. Floors**	146,876	(footprint * no floors)			
	3.8%	**ext. walls**	23,040	(based on calc for exterior/glazing below)			
	24.1%	**inter walls**	146,876	(varies depending on use/size - see calc below)			
	24.1%	**Roofs**	146,876	(typically same as footprint)			
	0.0%	**Windows/Glazing**	-	Windows/Glazing			
	24.1%	**Foundation**	146,876	Foundation (if available) Wall size; select below			
	1		610,544	(not including columns/beams)			

Interior Walls

Rule of thumb for calculation;
0.1 linear ft of wall material for each 1 sq ft of space x wall height x # floors
OR if partition space known, sum of all wall space: = (linear ft x height) of one wall for each interior partition

146,876 based on 0.1 linear ft

Foundation (Select one calculation)

		Foundation Dimensions (L-W)		Foundation Ht	
		146	1006	0	
If Wall				enter 0 if slab or unknown	
	-	total wall area * foundation ht			
If Slab				**If Footings**	
	146,876	size of footprint			need cubic yd of concrete

Exterior/Glazing-Window

Tl wall sq ft	Exterior Wall	Glazing/Window	(as decimal)	
23,040	1	0		55%/45% rule of thumb
	-	glazing/windows area		

Sources

All data in black text	King County, DNRP. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov Except ENVIRON Calculations	
Residential floorspace per unit	2001 Residential Energy Consumption Survey (National Average, 2001) Square footage measurements and comparisons http://www.eia.doe.gov/emeu/recs/sqft-measure.html	
Floorspace per building	EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003) Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003 http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls	
Average GWP (lbs CO2e/sq ft): Vancouver, Low Rise Building	Athena EcoCalculator	
SUPERCEDED by ENVIRON, 2011	Athena Assembly Evaluation Tool v2.3- Vancouver Low Rise Building Assembly Average GWP (kg) per square meter http://www.athenasmi.ca/tools/ecoCalculator/index.html Lbs per kg	2.20
	Square feet per square meter	10.76
Average Materials in a 2,272-square foot single family home	Buildings Energy Data Book: 7.3 Typical/Average Household	
NOT USED, ENVIRON 2011	Materials Used in the Construction of a 2,272-Square-Foot Single-Family Home, 2000 http://buildingsdatabook.eren.doe.gov/?id=view_book_table&TableID=2036&t=xls See also: NAHB, 2004 Housing Facts, Figures and Trends, Feb. 2004, p. 7.	
Average window size	Energy Information Administration/Housing Characteristics 1993	
NOT USED, ENVIRON 2011	Appendix B, Quality of the Data. Pg. 5. ftp://ftp.eia.doe.gov/pub/consumption/residential/rx93hcf.pdf	

Pavement Emissions Factors

Million metric tons of square feet of asphalt or concrete pavement	50 (see below: 17 for nonroad without maintenance)

Modified by ENVIRON 08/31/2011

Embodied GHG Emissions……Worksheet Background Information

Buildings
Embodied GHG emissions are emissions that are created through the extraction, processing, transportation, construction and disposal of building materials as well as emissions created through landscape disturbance (by both soil disturbance and changes in above ground biomass).

Estimating embodied GHG emissions is new field of analysis; the estimates are rapidly improving and becoming more inclusive of all elements of construction and development.

The estimate included in this worksheet is calculated using average values for the main construction materials that are used to create a typical family home. In 2004, the National Association of Home Builders calculated the average materials that are used in a typical 2,272 square foot single-family household. The quantity of materials used is then multiplied by the average GHG emissions associated with the life-cycle GHG emissions for each material.

This estimate is a rough and conservative estimate; the actual embodied emissions for a project are likely to be higher. For example, at this stage, due to a lack of comprehensive data, the estimate does not include important factors such as landscape disturbance or the emissions associated with the interior components of a building (such as furniture).

King County realizes that the calculations for embodied emissions in this worksheet are rough. For example, the emissions associated with building 1,000 square feet of a residential building will not be the same as 1,000 square feet of a commercial building. However, discussions with the construction community indicate that while there are significant differences between the different types of structures, this method of estimation is reasonable; it will be improved as more data become available.

Additionally, if more specific information about the project is known, King County recommends two online embodied emissions calculators that can be used to obtain a more tailored estimate for embodied emissions: www.buildcarbonneutral.org and www.athenasmi.ca/tools/ecoCalculator/.

Pavement
Four recent life cycle assessments of the environmental impacts of roads form the basis for the per unit embodied emissions of pavement. Each study is constructed in slightly different ways; however, the aggregate results of the reports represent a reasonable estimate of the GHG emissions that are created from the manufacture of paving materials, construction related emissions, and maintenance of the pavement over its expected life cycle. For specifics, see the worksheet.

The four studies, Meil (2001), Park (2003), Stripple (2001) and Treolar (2001) produced total GHG emissions of 4-34 MTCO2e per thousand square feet of finished paving (for similar asphalt and concrete based pavements). This estimate does not including downstream maintenance and repair of the highway. The average (for all concrete and asphalt pavements in the studies, assuming each study gets one data point) is ~17 MTCO2e/thousand square feet.

Three of the studies attempted to thoroughly account for the emissions associated with long term maintenance (40 years) of the roads. Stripple (2001), Park et al. (2003) and Treolar (2001) report 17, 81, and 68 MTCO2e/thousand square feet, respectively, after accounting for maintenance of the roads.

Based on the above discussion, King County makes the conservative estimate that 50 MTCO2e/thousand square feet of pavement (over the development's life cycle) will be used as the embodied emission factor for pavement until better estimates can be obtained. This is roughly equivalent to 3,500 MTCO2e per lane mile of road (assuming the lane is 13 feet wide).

It is important to note that these studies estimate the embodied emissions for roads. Paving that does not need to stand up to the rigors of heavy use (such as parking lots or driveways) would likely use less materials and hence have lower embodied emissions.

Sources:
Meil, J. A Life Cycle Perspective on Concrete and Asphalt Roadways: Embodied Primary Energy and Global Warming Potential. 2006. Available: http://www.cement.ca/cement.nsf/eee9ec7bbd630126852566c40052107b/6ec79dc8ae03a782852572b90061b914/$FILE/ATTK0WE3/athena%20report%20Feb.%202%202007.pdf

Park, K, Hwang, Y., Seo, S., M.ASCE, and Seo, H. , "Quantitative Assessment of Environmental Impacts on Life Cycle of Highways," Journal of Construction Engineering and Management , Vol 129, January/February 2003, pp 25-31, (DOI: 10.1061/(ASCE)0733-9364(2003)129:1(25)).

Stripple, H. Life Cycle Assessment of Road. A Pilot Study for Inventory Analysis. Second Revised Edition. IVL Swedish Environmental Research Institute Ltd. 2001. Available: http://www.ivl.se/rapporter/pdf/B1210E.pdf

Treloar, G., Love, P.E.D., and Crawford, R.H. Hybrid Life-Cycle Inventory for Road Construction and Use. Journal of Construction Engineering and Management. P. 43-49. January/February 2004.

Embodied Emissions Worksheet

Section I: Buildings

Principal Activity (Commercial)	# thousand sq feet/ unit or building	Life span related embodied GHG missions (MTCO2e/ unit)	Life span related embodied GHG missions (MTCO2e/ thousand square feet) - See calculations in table below
Public Order and Safety	15.5	51	3

Section II: Pavement.....

All Types of Pavement.....			17	**NonRoad Maintenance**

	Columns and Beams ENVIRON note	Intermediate Floors	Exterior Walls	Windows/Glazing	Interior Walls	Roofs	Foundations		
Average GWP (lbs CO2e/sq ft): Seattle, Low Rise Commercial Building ***Enter Values***	0.6	1.2	2.5	8.1	2.7	2.8	1.7	***From ATHENA ECOCALCULATOR***	
Average Materials in a 2-story concrete building (Based on ENVIRON calculations)	209,248	209,248	44,400	-	209,248	104,624	104,624	Total Embodied Emissions (MTCO2e)	Total Embodied Emissions (MTCO2e/ thousand sq feet)
MTCO2e	56.9	113.9	50.3	0.0	256.2	132.9	78.3	688.5	3.3

ENVIRON Calculations

Bldg Type — **1 Story Concrete & Steel**; *Irregular shape*

enter values in shaded box

Values in FEET

Represenative size of blg to match sq ft overestimates roof at 2-story Secured Cells (209,374 sq ft)

Approximate Blg Material Breakdown

				Bdlg dimensions (L - W)		Wall Ht
209,248	**bldg size sq ft**	104,624	footprint	104	1006	10
672,144	**new mat. Total**			No. floors	2	
-	**columns & beams**	209,248	ENVIRON note: Athena model calculates GWP based on total area of supported floors and/or roof; not amount of material			
31.1%	**inter. Floors**	209,248	(footprint * no floors)			
6.6%	**ext. walls**	44,400	(based on calc for exterior/glazing below)			
31.1%	**inter walls**	209,248	(varies depending on use/size - see calc below)			
15.6%	**Roofs**	104,624	(typically same as footprint)			
0.0%	**Windows/Glazing**	-	Windows/Glazing			
15.6%	**Foundation**	104,624	Foundation (if available) Wall size; select below			
1		672,144	(not including columns/beams)			

Interior Walls

Rule of thumb for calculation;
0.1 linear ft of wall material for each 1 sq ft of space x wall height x # floors
OR if partition space known, sum of all wall space: = (linear ft x height) of one wall for each interior partition

209,248 based on 0.1 linear ft

Foundation (Select one calculation)

		Foundation Dimensions (L-W)		Foundation Ht	
		104	1006	0	
If Wall				enter 0 if slab or unknown	
-	total wall area * foundation ht				
If Slab				**If Footings**	
104,624	size of footprint				need cubic yd of concrete

Exterior/Glazing-Window

Tl wall sq ft	Exterior Wall	Glazing/Window	(as decimal)	
44,400	1	0		55%/45% rule of thumb
	-	glazing/windows area		

Embodied Emissions Worksheet

Section I: Buildings

Principal Activity (Commercial)	# thousand sq feet/ unit or building	Life span related embodied GHG missions (MTCO2e/ unit)	Life span related embodied GHG missions (MTCO2e/ thousand square feet) - See calculations in table below
Vacant-..Bus Barn.....	9.9	20	2

Section II: Pavement.....

All Types of Pavement.....			17	**NonRoad Maintenance**

	Columns and Beams [ENVIRON note]	Intermediate Floors	Exterior Walls	Windows/Glazing	Interior Walls	Roofs	Foundations		
Average GWP (lbs CO2e/sq ft): Seattle, Low Rise Commercial Building ***Enter Values***	0.1	1.2	1.9	0.0	0.0	1.7	0.8	***From ATHENA ECOCALCULATOR***	
Average Materials in a prefabricated metal building (Based on ENVIRON calculations)	9,999	9,999	4,000	-	-	9,999	9,999	Total Embodied Emissions (MTCO2e)	Total Embodied Emissions (MTCO2e/ thousand sq feet)
MTCO2e	0.4	5.2	3.4	0.0	0.0	7.7	3.6	20.4	2.0

ENVIRON Calculations

Bldg Type — **1 Story Prefabricated Steel Buildin**

enter values in shaded box

Values in FEET

Represenative size of blg to match sq ft

Approximate Blg Material Breakdown

			Bdlg dimensions (L - W)		Wall Ht
9,999	**bldg size sq ft**	9,999 footprint	99	101	10
43,996	**new mat. Total**		No. floors	1	
-	**columns & beams**	9,999	ENVIRON note: Athena model calculates GWP based on total area of supported floors and/or roof; not amount of material		
22.7%	**inter. Floors**	9,999	(footprint * no floors)		
9.1%	**ext. walls**	4,000	(based on calc for exterior/glazing below)		
22.7%	**inter walls**	9,999	(varies depending on use/size - see calc below)		
22.7%	**Roofs**	9,999	(typically same as footprint)		
0.0%	**Windows/Glazing**	-	Windows/Glazing		
22.7%	**Foundation**	9,999	Foundation (if available) Wall size; select below		
1		43,996	(not including columns/beams)		

Interior Walls

Rule of thumb for calculation;

0.1 linear ft of wall material for each 1 sq ft of space x wall height x # floors

OR if partition space known, sum of all wall space: = (linear ft x height) of one wall for each interior partition

9,999 based on 0.1 linear ft

Foundation (Select one calculation)

	Foundation Dimensions (L-W)		Foundation Ht		
	99	101	0		
If Wall			enter 0 if slab or unknown		
- total wall area * foundation ht					
If Slab				**If Footings**	
9,999 size of footprint					need cubic yd of concrete

Exterior/Glazing-Window

Tl wall sq ft	Exterior Wall	Glazing/Window (as decimal)	
4,000	1	0	55%/45% rule of thumb
- glazing/windows area			

Energy Emissions Worksheet

Principal Activity (Commercial)	Energy consumption per building per year (million Btu)	Carbon Coefficient for Buildings	MTCO2e per building per year	Floorspace per Building (thousand square feet)	MTCE per thousand square feet per year	MTCO2e per thousand square feet per year	Average Building Life Span	Lifespan Energy Related MTCO2e emissions per unit	Lifespan Energy Related MTCO2e emissions per thousand square feet
Public Order and Safety	1,791.0	0.124	222.7	15.5	14.4	52.7	62.5	13,928	899
Vacant-..Bus Barn.....	294.0	0.124	36.6	14.1	2.6	9.5	62.5	2,286	162

Sources

All data in black text — King County, DNRP. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov

Energy consumption for residential buildings

2007 Buildings Energy Data Book: 6.1 Quad Definitions and Comparisons (National Average, 2001)
Table 6.1.4: Average Annual Carbon Dioxide Emissions for Various Functions
http://buildingsdatabook.eren.doe.gov/
Data also at: http://www.eia.doe.gov/emeu/recs/recs2001_ce/ce1-4c_housingunits2001.html

Energy Data can be updated based on current EAI data
ENVIRON Project specific data:
average floor space per unit

Energy consumption for commercial buildings and Floorspace per building

EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003)
Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls

Note: Data in plum color is found in both of the above sources (buildings energy data book and commercial buildings energy consumption survey).

Carbon Coefficient for Buildings

Buildings Energy Data Book (National average, 2005)
Table 3.1.7. 2005 Carbon Dioxide Emission Coefficients for Buildings (MMTCE per Quadrillion Btu)
http://buildingsdatabook.eere.energy.gov/?id=view_book_table&TableID=2057
Note: Carbon coefficient in the Energy Data book is in MTCE per Quadrillion Btu.
To convert to MTCO2e per million Btu, this factor was divided by 1000 and multiplied by 44/12.

Residential floorspace per unit

2001 Residential Energy Consumption Survey (National Average, 2001)
Square footage measurements and comparisons
http://www.eia.doe.gov/emeu/recs/sqft-measure.html

average lief span of buildings, estimated by replacement time method

	Single Family Homes	Multi-Family Units in Large and Small Buildings	All Residential Buildings	
New Housing Construction, 2001	1,273,000	329,000	1,602,000	
Existing Housing Stock, 2001	73,700,000	26,500,000	100,200,000	
Replacement time:	57.9	80.5	62.5	(national average, 2001)

Note: Single family homes calculation is used for mobile homes as a best estimate life span.
Note: At this time, KC staff could find no reliable data for the average life span of commercial buildings.
Therefore, the average life span of residential buildings is being used until a better approximation can be ascertained.

Sources:

New Housing Construction, 2001 — Quarterly Starts and Completions by Purpose and Design - US and Regions (Excel)
http://www.census.gov/const/quarterly_starts_completions_cust.xls
See also: http://www.census.gov/const/www/newresconstindex.html

Existing Housing Stock, 2001 — Residential Energy Consumption Survey (RECS) 2001
Tables HC1:Housing Unit Characteristics, Million U.S. Households 2001
Table HC1-4a. Housing Unit Characteristics by Type of Housing Unit, Million U.S. Households, 2001
Million U.S. Households, 2001
http://www.eia.doe.gov/emeu/recs/recs2001/hc_pdf/housunits/hc1-4a_housingunits2001.pdf

Energy Consumption…….……Worksheet Background Information

This section helps estimate the GHG emissions associated with energy used after the building has been constructed. It includes energy used by an average building. All estimates in this section are based on national average building energy usage from the Energy Information Administration and from the Department of Energy's Buildings Energy Data Book.

An important part of this estimate, as well as the transportation related estimate described in the next section, is to determine the average life span of buildings. This is not an easy task and no uniform estimates have been documented. However, one way to estimate building life spans is to estimate the ratio of the number of existing building units to that of annually constructed new units. This is the method employed in this worksheet. This method is most likely an underestimate of average building life spans as it does not account for growth in the total overall number of buildings. When compared with a literature review, the average life span of 62.5 years per building used in this worksheet is conservative but reasonable (e.g., 80-100 year average U.S. building service life reported by the Environment Policy Committee).

Environment Policy Committee. Design of Sustainable Building Policies: Scope for Improvement and Barriers. Organisation for Economic Co-operation and Development. Available:
http://www.olis.oecd.org/olis/2001doc.nsf/43bb6130e5e86e5fc12569fa005d004c/203e895174de4e56c1256bd7003be835/$FILE/JT00128164.PDF

Transportation Emissions Worksheet

Principal Activity (Commercial)	# people/ unit or building	# thousand sq feet/ unit or building	# people or employees/ thousand square feet	vehicle related GHG emissions (metric tonnes CO2e per person per year)	MTCO2e/ year/ unit	MTCO2e/ year/ thousand square feet	Average Building Life Span	Life span transportation related GHG emissions (MTCO2e/ per unit)	Life span transportation related GHG emissions (MTCO2e/ thousand sq feet)
Public Order and Safety	18.8	15.5	1.2	0.0	0.0	0.0	62.5	0	0
Vacant .....Bus Barn.....	0.0	14.1	0.2	0.0	0.0	0.0	62.5	0	0
								NOT USED	NOT USED

Sources

All data in black text — King County, DNRP. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov

people/ unit

Estimating Household Size for Use in Population Estimates (WA state, 2000 average)
Washington State Office of Financial Management
Kimpel, T. and Lowe, T. Research Brief No. 47. August 2007
http://www.ofm.wa.gov/researchbriefs/brief047.pdf
Note: This analysis combines Multi Unit Structures in both large and small units into one category; the average is used in this case although there is likely a difference

ENVIRON project specific data
project data estimates from primary data sheets employees
478 employees
1.306010929

Residential floorspace per unit

2001 Residential Energy Consumption Survey (National Average, 2001)
Square footage measurements and comparisons
http://www.eia.doe.gov/emeu/recs/sqft-measure.html

employees/thousand square feet

Commercial Buildings Energy Consumption Survey commercial energy uses and costs (National Median, 2003)
Table B2 Totals and Medians of Floorspace, Number of Workers, and Hours of Operation for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set1/2003excel/b2.xls

Note: Data for # employees/thousand square feet is presented by CBECS as square feet/employee.
In this analysis employees/thousand square feet is calculated by taking the inverse of the CBECS number and multiplying by 1000.

vehicle related GHG emissions

Updated by ENVIRON on *08/30/2011*

Estimate calculated as follows (Washington state, 2006)_

annual
6,850,470 Estimated VMT from Heffron Transp. Inc. August 2011

56,531,930,000 2006 Annual WA State Vehicle Miles Traveled
Data was daily VMT. Annual VMT was 365*daily VMT.
http://www.wsdot.wa.gov/mapsdata/tdo/annualmileage.htm

6,395,798 2006 WA state population
http://quickfacts.census.gov/qfd/states/53000.html

8839 vehicle miles per person per year

Updated MPG ratings

	mpg 2006	% car/truck
	22.4	0.553
	18	0.447

0.0506 gallon gasoline/mile — gallon gasoline/mile 0.0489

20.4332 weighted avg mpg

This is the weighted national average fuel efficiency for all cars and 2 axle, 4 wheel light trucks in 2005. This includes pickup trucks, vans and SUVs. The 0.051 gallons/mile used here is the inverse of the more commonly known term "miles/per gallon" (which is 19.75 for these cars and light trucks).
Transportation Energy Data Book. 26th Edition. 2006. Chapter 4: Light Vehicles and Characteristics. Calculations based on weighted average MPG efficiency of cars and light trucks.
http://cta.ornl.gov/data/tedb26/Edition26_Chapter04.pdf
Note: This report states that in 2005, 92.3% of all highway VMT were driven by the above described vehicles.
http://cta.ornl.gov/data/tedb26/Spreadsheets/Table3_04.xls

20.37 Use This: Total lbs CO2e/g gasoline

24.3 lbs CO2e/gallon gasoline — 19.4 lbs CO2e/g gasoline — 19.4+(19.4*.05)

The CO2 emissions estimates for gasoline and diesel include the extraction, transport, and refinement of petroleum as well as their combustion.
Life-Cycle CO2 Emissions for Various New Vehicles. RENew Northfield.
Available: http://renewnorthfield.org/wpcontent/uploads/2006/04/CO2%20emissions.pdf
Note: This is a conservative estimate of emissions by fuel consumption because diesel fuel, with a emissions factor of 26.55 lbs CO2e/gallon was not estimated.

http://www.epa.gov/otaq/climate/420f05004.htm
Emission Facts: Greenhouse Gas Emissions from a Typical Passenger Vehicle
EPA420-F-05-004 February 2005

2205 lbs/metric tonne

3,097.18 vehicle related GHG emissions (metric tonnes CO2e per year)

vehicle related GHG emissions (metric tonnes CO2e per person per year)

193,718.74 Lifetime total ghg emissions

average lief span of buildings, estimated by replacement time method — See Energy Emissions Worksheet for Calculations

Commercial floorspace per unit

EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003)
Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls

Transportation……..…….Worksheet Background Information

This section helps estimate the emissions associated with transportation of building occupants. At this time, it is based on average vehicle miles traveled by the average Washington State citizen.

Modified by ENVIRON 08/31/2011

WA State Dept of Corrections Reception Center EIS - Thurston County Site
Section I: Buildings

Type	Vehicle Miles Traveled (VMT)	Square Feet (in thousands of square feet)	Emissions Per Thousand Square Feet (MTCO2e) Embodied	Energy**	Transportation	Lifespan Emissions (MTCO2e)
Public Order and Safety ...1 Story nonsecured.....		147	4	899	-	**132,453**
Public Order and Safety ..2 Story Housing.....		209	3	899	-	**188,833**
Vacant-..Bus Barn.....		9.9	2	162	-	**1,626**
Transportation Related (based on project VMT).....	5,878,340		-	-	-	**166,229**

Section II: Pavement on ROW/Private Access/Surface Parking.....

Pavement - Parking Lot.....		370.40				**6,297**

Total Project Emissions: **495,437**

Assumptions:

Main Building (from Westside Reception Outline Specifications)

Exterior - Precast Structural/Architectural Concrete
No exterior windows throughout building
Floor/Roof - Precast Hollow-core Concrete Planks
Interior Cells: Concrete masonry (60% of building sq ft)
Structural Steel joist framing, columns, beams
Concrete Slab Foundation

Existing buildings would be remodeled for Maintenance, Food Service and Laundry, and Warehouse. Some Emobodied Emissions are removed from calcs.
(Materials excluded are :foundation, exterior, and roof materials. Interior walls and floors are included in the GHG estimates.)

Bus Barn

Sheet metal exterior, roof
Pre-fabricated building

Transportation

Based on Heffron VMT estimates, using EPA MPG rating and CO2e emissions rates for vehicles

Parking Lot

Source; AHBL, Opinion of Probable Cost - Predesign

**Energy

Building would be constructed to LEED Silver Rating but no deductions accounted in GHG energy determinations

Modified by ENVIRON 08/31/2011

Embodied Emissions Worksheet

Section I: Buildings

Principal Activity (Commercial)	# thousand sq feet/ unit or building	Life span related embodied GHG missions (MTCO2e/ unit)	Life span related embodied GHG missions (MTCO2e/ thousand square feet) - See calculations in table below
Public Order and Safety	15.5	59	4
Vacant-..Bus Barn.....	9.9	37	4

Section II: Pavement.....

All Types of Pavement.....			17	**NonRoad Maintenance**

	Columns and Beams ENVIRON note	Intermediate Floors	Exterior Walls	Windows/Glazing	Interior Walls	Roofs	Foundations		
Average GWP (lbs CO2e/sq ft): Seattle, Low Rise Commercial Building ***Enter Values***	0.6	1.2	2.5	8.1	2.7	2.8	1.7	***From ATHENA ECOCALCULATOR***	
Average Materials in a 1 story concrete building and existing remodels (Based on ENVIRON calculations)	112,552	146,876	14,180	-	163,860	112,552	112,642	Total Embodied Emissions (MTCO2e)	Total Embodied Emissions (MTCO2e/ thousand sq feet)
MTCO2e	30.6	79.9	16.1	0.0	200.6	142.9	84.3	554.5	3.8

ENVIRON Calculations

Bldg Type

1 Story Concrete & Steel

Irregular shape

Approximate Blg Material Breakdown

146,876	**bldg size sq ft**
550,110	**new mat. Total**
-	**columns & beams**
26.7%	**inter. Floors**
2.6%	**ext. walls**
29.8%	**inter walls**
20.5%	**Roofs**
0.0%	**Windows/Glazing**
20.5%	**Foundation**
1	

enter values in shaded box

Values in FEET

Represenative size of blg to match sq ft (approx. 146,782 sq ft non-secured 1 story: remodeled buildings -

		Bldg dimensions (L - W)		Wall Ht	
146,876	footprint	146	1006	10	*excluded 34,325 sq ' from exterior/roof/foundation)*
		No. floors	1		*added 16,984 to interior walls for remodeling existing sq ft)*
112,552	ENVIRON note: Athena model calculates GWP based on total area of supported floors and/or roof; not amount of material				
146,876	(footprint * no floors)				
14,180	(based on calc for exterior/glazing below)				
163,860	(varies depending on use/size - see calc below)				
112,552	(typically same as footprint)				
-	Windows/Glazing				
112,642	Foundation (if available) Wall size; select below				
550,110	(not including columns/beams)				

Interior Walls

Rule of thumb for calculation;

0.1 linear ft of wall material for each 1 sq ft of space x wall height x # floors

OR if partition space known, sum of all wall space = (linear ft x height) of one wall for each interior partition

163,860 based on 0.1 linear ft

existing structures are assumed to require interior remodeling of walls, net 16,984 sf

Foundation (Select one calculation)

Foundation Dimensions (L-W): 146 × 1006; Foundation Ht: 0

If Wall

\- total wall area * foundation ht

enter 0 if slab or unknown

If Slab

146,876 size of footprint

If Footings

need cubic yd of concrete

Exterior/Glazing-Window

Tl wall sq ft	Exterior Wall	Glazing/Window	(as decimal)	
14,180	1	0		55%/45% rule of thumb
		-	glazing/windows area	

Sources

All data in black text — King County, DNRP. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov; Except ENVIRON Calculations

Residential floorspace per unit — 2001 Residential Energy Consumption Survey (National Average, 2001); Square footage measurements and comparisons; http://www.eia.doe.gov/emeu/recs/sqft-measure.html

Floorspace per building — EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003); Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003; http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls

Average GWP (lbs CO2e/sq ft): Vancouver, Low Rise Building — Athena EcoCalculator

SUPERCEDED by ENVIRON, 2011 — Athena Assembly Evaluation Tool v2.3- Vancouver Low Rise Building; Assembly Average GWP (kg) per square meter; http://www.athenasmi.ca/tools/ecoCalculator/index.html; Lbs per kg 2.20; Square feet per square meter 10.76

Average Materials in a 2,272-square foot single family home — Buildings Energy Data Book: 7.3 Typical/Average Household

NOT USED, ENVIRON 2011 — Materials Used in the Construction of a 2,272-Square-Foot Single-Family Home, 2000; http://buildingsdatabook.eren.doe.gov/?id=view_book_table&TableID=2036&t=xls; See also: NAHB, 2004 Housing Facts, Figures and Trends, Feb. 2004, p. 7.

Average window size — Energy Information Administration/Housing Characteristics 1993

NOT USED, ENVIRON 2011 — Appendix B, Quality of the Data. Pg. 5.; ftp://ftp.eia.doe.gov/pub/consumption/residential/rx93hcf.pdf

Pavement Emissions Factors

MTCO2e/thousand square feet of asphalt or concrete pavement — **50 (see below: 17 for nonroad without maintenance)**

Embodied GHG Emissions……..Worksheet Background Information

Buildings
Embodied GHG emissions are emissions that are created through the extraction, processing, transportation, construction and disposal of building materials as well as emissions created through landscape disturbance (by both soil disturbance and changes in above ground biomass).

Estimating embodied GHG emissions is new field of analysis; the estimates are rapidly improving and becoming more inclusive of all elements of construction and development.

The estimate included in this worksheet is calculated using average values for the main construction materials that are used to create a typical family home. In 2004, the National Association of Home Builders calculated the average materials that are used in a typical 2,272 square foot single-family household. The quantity of materials used is then multiplied by the average GHG emissions associated with the life-cycle GHG emissions for each material.

This estimate is a rough and conservative estimate; the actual embodied emissions for a project are likely to be higher. For example, at this stage, due to a lack of comprehensive data, the estimate does not include important factors such as landscape disturbance or the emissions associated with the interior components of a building (such as furniture).

King County realizes that the calculations for embodied emissions in this worksheet are rough. For example, the emissions associated with building 1,000 square feet of a residential building will not be the same as 1,000 square feet of a commercial building. However, discussions with the construction community indicate that while there are significant differences between the different types of structures, this method of estimation is reasonable; it will be improved as more data become available.

Additionally, if more specific information about the project is known, King County recommends two online embodied emissions calculators that can be used to obtain a more tailored estimate for embodied emissions: www.buildcarbonneutral.org and www.athenasmi.ca/tools/ecoCalculator/.

Pavement
Four recent life cycle assessments of the environmental impacts of roads form the basis for the per unit embodied emissions of pavement. Each study is constructed in slightly different ways; however, the aggregate results of the reports represent a reasonable estimate of the GHG emissions that are created from the manufacture of paving materials, construction related emissions, and maintenance of the pavement over its expected life cycle. For specifics, see the worksheet.

The four studies, Meil (2001), Park (2003), Stripple (2001) and Treolar (2001) produced total GHG emissions of 4-34 MTCO2e per thousand square feet of finished paving (for similar asphalt and concrete based pavements). This estimate does not including downstream maintenance and repair of the highway. The average (for all concrete and asphalt pavements in the studies, assuming each study gets one data point) is ~17 MTCO2e/thousand square feet.

Three of the studies attempted to thoroughly account for the emissions associated with long term maintenance (40 years) of the roads. Stripple (2001), Park et al. (2003) and Treolar (2001) report 17, 81, and 68 MTCO2e/thousand square feet, respectively, after accounting for maintenance of the roads.

Based on the above discussion, King County makes the conservative estimate that 50 MTCO2e/thousand square feet of pavement (over the development's life cycle) will be used as the embodied emission factor for pavement until better estimates can be obtained. This is roughly equivalent to 3,500 MTCO2e per lane mile of road (assuming the lane is 13 feet wide).

It is important to note that these studies estimate the embodied emissions for roads. Paving that does not need to stand up to the rigors of heavy use (such as parking lots or driveways) would likely use less materials and hence have lower embodied emissions.

Sources:
Meil, J. A Life Cycle Perspective on Concrete and Asphalt Roadways: Embodied Primary Energy and Global Warming Potential. 2006. Available:
http://www.cement.ca/cement.nsf/eee9ec7bbd630126852566c40052107b/6ec79dc8ae03a782852572b90061b914/$FILE/ATTK0WE3/athena%20report%20Feb.%202%202007.pdf

Park, K, Hwang, Y., Seo, S., M.ASCE, and Seo, H. , "Quantitative Assessment of Environmental Impacts on Life Cycle of Highways," Journal of Construction Engineering and Management , Vol 129, January/February 2003, pp 25-31, (DOI: 10.1061/(ASCE)0733-9364(2003)129:1(25)).

Stripple, H. Life Cycle Assessment of Road. A Pilot Study for Inventory Analysis. Second Revised Edition. IVL Swedish Environmental Research Institute Ltd. 2001. Available:
http://www.ivl.se/rapporter/pdf/B1210E.pdf

Treloar, G., Love, P.E.D., and Crawford, R.H. Hybrid Life-Cycle Inventory for Road Construction and Use. Journal of Construction Engineering and Management. P. 43-49. January/February 2004.

Embodied Emissions Worksheet

Section I: Buildings

Principal Activity (Commercial)	# thousand sq feet/ unit or building	Life span related embodied GHG missions (MTCO2e/ unit)	Life span related embodied GHG missions (MTCO2e/ thousand square feet) - See calculations in table below
Public Order and Safety	15.5	51	3
Vacant-..Bus Barn.....	9.9	33	3

Section II: Pavement.....

All Types of Pavement.....			17	**NonRoad Maintenance**

	Columns and Beams ENVIRON note	Intermediate Floors	Exterior Walls	Windows/Glazing	Interior Walls	Roofs	Foundations		
Average GWP (lbs CO2e/sq ft): Seattle, Low Rise Commercial Building ***Enter Values***	0.6	1.2	2.5	8.1	2.7	2.8	1.7	***From ATHENA ECOCALCULATOR***	
Average Materials in a 2- story concrete building (Based on ENVIRON calculations)	209,248	209,248	44,400	-	209,248	104,624	104,624	Total Embodied Emissions (MTCO2e)	Total Embodied Emissions (MTCO2e/ thousand sq feet)
MTCO2e	56.9	113.9	50.3	0.0	256.2	132.9	78.3	688.5	3.3

ENVIRON Calculations

Bldg Type — **1 Story Concrete & Steel**

Irregular shape

enter values in shaded box

Values in FEET

Represenative size of blg to match sq ft overestimates roof at 2-story Secured Cells (209,374 sq ft)

			Bdlg dimensions (L - W)		Wall Ht
		104,624 footprint	104	1006	10
			No. floors	2	

Approximate Blg Material Breakdown

209,248	**bldg size sq ft**		
672,144	**new mat. Total**		
-	**columns & beams**	209,248	ENVIRON note: Athena model calculates GWP based on total area of supported floors and/or roof; not amount of material
31.1%	**inter. Floors**	209,248	(footprint * no floors)
6.6%	**ext. walls**	44,400	(based on calc for exterior/glazing below)
31.1%	**inter walls**	209,248	(varies depending on use/size - see calc below)
15.6%	**Roofs**	104,624	(typically same as footprint)
0.0%	**Windows/Glazing**	-	Windows/Glazing
15.6%	**Foundation**	104,624	Foundation (if available) Wall size; select below
1		672,144	(not including columns/beams)

Interior Walls

Rule of thumb for calculation;

0.1 linear ft of wall material for each 1 sq ft of space x wall height x # floors

OR if partition space known, sum of all wall space = (linear ft x height) of one wall for each interior partition

209,248 based on 0.1 linear ft

Foundation (Select one calculation)

	Foundation Dimensions (L-W)		Foundation Ht	
	104	1006	0	
If Wall			enter 0 if slab or unknown	
- total wall area * foundation ht				
If Slab				**If Footings**
104,624 size of footprint				need cubic yd of concrete

Exterior/Glazing-Window

Tl wall sq ft	Exterior Wall	Glazing/Window	(as decimal)	
44,400	1	0		55%/45% rule of thumb
	-	glazing/windows area		

Embodied Emissions Worksheet

Section I: Buildings

Principal Activity (Commercial)	# thousand sq feet/ unit or building	Life span related embodied GHG missions (MTCO2e/ unit)	Life span related embodied GHG missions (MTCO2e/ thousand square feet) - See calculations in table below
Public Order and Safety	15.5	32	2
Vacant-..Bus Barn.....	9.9	20	2

Section II: Pavement.....

All Types of Pavement.....			17	**NonRoad Maintenance**

	Columns and Beams ENVIRON note	Intermediate Floors	Exterior Walls	Windows/Glazing	Interior Walls	Roofs	Foundations		
Average GWP (lbs CO2e/sq ft): Seattle, Low Rise Commercial Building ***Enter Values***	0.1	1.2	1.9	0.0	0.0	1.7	0.8	***From ATHENA ECOCALCULATOR***	
Average Materials in a prefabricated metal building (Based on ENVIRON calculations)	9,999	9,999	4,000	-	-	9,999	9,999	Total Embodied Emissions (MTCO2e)	Total Embodied Emissions (MTCO2e/ thousand sq feet)
MTCO2e	0.4	5.2	3.4	0.0	0.0	7.7	3.6	20.4	2.0

ENVIRON Calculations

Bldg Type — **1 Story Prefabricated Steel Building**

enter values in shaded box

Values in FEET

Represenative size of blg to match sq ft

			Bdlg dimensions (L - W)		Wall Ht
Approximate Blg Material Breakdown					
9,999	**bldg size sq ft**	9,999	footprint	99	101	10
43,996	**new mat. Total**		No. floors		1	
-	**columns & beams**	9,999	ENVIRON note: Athena model calculates GWP based on total area of supported floors and/or roof; not amount of material			
22.7%	**inter. Floors**	9,999	(footprint * no floors)			
9.1%	**ext. walls**	4,000	(based on calc for exterior/glazing below)			
22.7%	**inter walls**	9,999	(varies depending on use/size - see calc below)			
22.7%	**Roofs**	9,999	(typically same as footprint)			
0.0%	**Windows/Glazing**	-	Windows/Glazing			
22.7%	**Foundation**	9,999	Foundation (if available) Wall size; select below			
1		43,996	(not including columns/beams)			

Interior Walls

Rule of thumb for calculation;

0.1 linear ft of wall material for each 1 sq ft of space x wall height x # floors

OR if partition space known, sum of all wall space: = (linear ft x height) of one wall for each interior partition

9,999 based on 0.1 linear ft

Foundation (Select one calculation)

	Foundation Dimensions (L-W)		Foundation Ht		
	99	101	0		
If Wall			enter 0 if slab or unknown		
-	total wall area * foundation ht				
If Slab				**If Footings**	
9,999	size of footprint				need cubic yd of concrete

Exterior/Glazing-Window

Tl wall sq ft	Exterior Wall	Glazing/Window	(as decimal)	
4,000	1	0		55%/45% rule of thumb
		-	glazing/windows area	

Modified by ENVIRON 08/31/2011

Energy Emissions Worksheet

Principal Activity (Commercial)	Energy consumption per building per year (million Btu)	Carbon Coefficient for Buildings	MTCO2e per building per year	Floorspace per Building (thousand square feet)	MTCE per thousand square feet per year	MTCO2e per thousand square feet per year	Average Building Life Span	Lifespan Energy Related MTCO2e emissions per unit	Lifespan Energy Related MTCO2e emissions per thousand square feet
Public Order and Safety	1,791.0	0.124	222.7	15.5	14.4	52.7	62.5	13,928	899
Vacant-..Bus Barn.....	294.0	0.124	36.6	14.1	2.6	9.5	62.5	2,286	162

Sources

All data in black text — King County, DNRP. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov

Energy consumption for residential buildings

2007 Buildings Energy Data Book: 6.1 Quad Definitions and Comparisons (National Average, 2001)
Table 6.1.4: Average Annual Carbon Dioxide Emissions for Various Functions
http://buildingsdatabook.eren.doe.gov/
Data also at: http://www.eia.doe.gov/emeu/recs/recs2001_ce/ce1-4c_housingunits2001.html

Energy Data can be updated based on current EAI data

ENVIRON Project specific data:

average floor space per unit

Energy consumption for commercial buildings and Floorspace per building

EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003)
Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls

Note: Data in plum color is found in both of the above sources (buildings energy data book and commercial buildings energy consumption survey).

Carbon Coefficient for Buildings

Buildings Energy Data Book (National average, 2005)
Table 3.1.7. 2005 Carbon Dioxide Emission Coefficients for Buildings (MMTCE per Quadrillion Btu)
http://buildingsdatabook.eere.energy.gov/?id=view_book_table&TableID=2057
Note: Carbon coefficient in the Energy Data book is in MTCE per Quadrillion Btu.
To convert to MTCO2e per million Btu, this factor was divided by 1000 and multiplied by 44/12.

Residential floorspace per unit

2001 Residential Energy Consumption Survey (National Average, 2001)
Square footage measurements and comparisons
http://www.eia.doe.gov/emeu/recs/sqft-measure.html

average lief span of buildings, estimated by replacement time method

	Single Family Homes	Multi-Family Units in Large and Small Buildings	All Residential Buildings
New Housing Construction, 2001	1,273,000	329,000	1,602,000
Existing Housing Stock, 2001	73,700,000	26,500,000	100,200,000
Replacement time:	57.9	80.5	62.5

(national average, 2001)

Note: Single family homes calculation is used for mobile homes as a best estimate life span.
Note: At this time, KC staff could find no reliable data for the average life span of commercial buildings.
Therefore, the average life span of residential buildings is being used until a better approximation can be ascertained.

Sources:

New Housing Construction, 2001

Quarterly Starts and Completions by Purpose and Design - US and Regions (Excel)
http://www.census.gov/const/quarterly_starts_completions_cust.xls
See also: http://www.census.gov/const/www/newresconstindex.html

Existing Housing Stock, 2001

Residential Energy Consumption Survey (RECS) 2001
Tables HC1:Housing Unit Characteristics, Million U.S. Households 2001
Table HC1-4a. Housing Unit Characteristics by Type of Housing Unit, Million U.S. Households, 2001
Million U.S. Households, 2001
http://www.eia.doe.gov/emeu/recs/recs2001/hc_pdf/housunits/hc1-4a_housingunits2001.pdf

Transportation Emissions Worksheet

Principal Activity (Commercial)	# people/ unit or building	# thousand sq feet/ unit or building	# people or employees/ thousand square feet	vehicle related GHG emissions (metric tonnes CO2e per person per year)	MTCO2e/ year/ unit	MTCO2e/ year/ thousand square feet	Average Building Life Span	Life span transportation related GHG emissions (MTCO2e/ per unit)	Life span transportation related GHG emissions (MTCO2e/ thousand sq feet)
Public Order and Safety	18.8	15.5	1.2	0.0	0.0	0.0	62.5	0	0
Vacant .....Bus Barn.....	0.0	14.1	0.2	0.0	0.0	0.0	62.5	0	0
								NOT USED	NOT USED

Sources

All data in black text — King County, DNRP. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov

people/ unit — Estimating Household Size for Use in Population Estimates (WA state, 2000 average)
Washington State Office of Financial Management
Kimpel, T. and Lowe, T. Research Brief No. 47. August 2007
http://www.ofm.wa.gov/researchbriefs/brief047.pdf
Note: This analysis combines Multi Unit Structures in both large and small units into one category; the average is used in this case although there is likely a difference

ENVIRON project specific data
project data estimates from primary data sheets employees
478 employees
1.306010929

Residential floorspace per unit — 2001 Residential Energy Consumption Survey (National Average, 2001)
Square footage measurements and comparisons
http://www.eia.doe.gov/emeu/recs/sqft-measure.html

employees/thousand square feet — Commercial Buildings Energy Consumption Survey commercial energy uses and costs (National Median, 2003)
Table B2 Totals and Medians of Floorspace, Number of Workers, and Hours of Operation for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set1/2003excel/b2.xls

Note: Data for # employees/thousand square feet is presented by CBECS as square feet/employee.
In this analysis employees/thousand square feet is calculated by taking the inverse of the CBECS number and multiplying by 1000.

vehicle related GHG emissions

Updated by ENVIRON on *8/30/2011*

Estimate calculated as follows (Washington state, 2006)_
annual
56,531,930,000 2006 Annual WA State Vehicle Miles Traveled — 5,878,340 Estimated VMT from Heffron Transp. Inc. August 2011
Data was daily VMT. Annual VMT was 365*daily VMT.
http://www.wsdot.wa.gov/mapsdata/tdo/annualmileage.htm
6,395,798 2006 WA state population
http://quickfacts.census.gov/qfd/states/53000.html

Updated MPG ratings

mpg 2006	% car/truck
22.4	0.553
18	0.447

8839 vehicle miles per person per year
0.0506 gallon gasoline/mile — gallon gasoline/mile 0.0489 — 20.4332 weighted avg mpg
This is the weighted national average fuel efficiency for all cars and 2 axle, 4 wheel light trucks in 2005. This includes pickup trucks, vans and SUVs. The 0.051 gallons/mile used here is the inverse of the more commonly known term "miles/per gallon" (which is 19.75 for these cars and light trucks).
Transportation Energy Data Book. 26th Edition. 2006. Chapter 4: Light Vehicles and Characteristics. Calculations based on weighted average MPG efficiency of cars and light trucks.
http://cta.ornl.gov/data/tedb26/Edition26_Chapter04.pdf
Note: This report states that in 2005, 92.3% of all highway VMT were driven by the above described vehicles.
http://cta.ornl.gov/data/tedb26/Spreadsheets/Table3_04.xls
20.37 Use This: Total lbs CO2e/g gasoline
24.3 lbs CO2e/gallon gasoline — lbs CO2e/g gasoline 19.4 — 19.4+(19.4*.05)
The CO2 emissions estimates for gasoline and diesel include the extraction, transport, and refinement of petroleum as well as their combustion.
http://www.epa.gov/otaq/climate/420f05004.htm
Emission Facts: Greenhouse Gas Emissions from a Typical Passenger Vehicle EPA420-F-05-004 February 2005
Life-Cycle CO2 Emissions for Various New Vehicles. RENew Northfield.
Available: http://renewnorthfield.org/wpcontent/uploads/2006/04/CO2%20emissions.pdf
Note: This is a conservative estimate of emissions by fuel consumption because diesel fuel, with a emissions factor of 26.55 lbs CO2e/gallon was not estimated.
2205
4.93 lbs/metric tonne
vehicle related GHG emissions (metric tonnes CO2e per person per year) — 2,657.67 vehicle related GHG emissions (metric tonnes CO2e per year)

average lief span of buildings, estimated by replacement time method — See Energy Emissions Worksheet for Calculations — **166,228.68 Lifetime total ghg emissions**

Commercial floorspace per unit — EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003)
Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls

Transportation……..…….Worksheet Background Information

This section helps estimate the emissions associated with transportation of building occupants. At this time, it is based on average vehicle miles traveled by the average Washington State citizen.

APPENDIX E

Energy and Resources Technical Report

Energy and Resources Report

PREPARED FOR:

Integrus Architecture
117 South Main Street, Suite 100
Seattle, WA 98104

PROJECT:

DOC Westside Prison Reception Center

PREPARED BY:

Kjersten Kuhta, PE (Mechanical)
Brandon Enevold, PE (Electrical)

DATE:

August 2011

Section 1. INTRODUCTION

This Technical Report for the EIS analyzes the environmental conditions and impacts on electrical power, natural gas, and fossil fuel vehicle usage, and on site fuel storage associated with three site alternatives being considered as the location of the proposed Westside Prison Reception Center. This technical report supports the Energy and Utilities sections of the Environmental Impact Statement (EIS) for the Department of Corrections Westside Reception Center.

Section 2. EXISTING CONDITIONS

Electric Power

Bremerton

Puget Sound Energy (PSE) is the electrical utility service provider for this site.

Mason County

Mason County PUD No. 3 (PUD3) is the electrical utility service provider for this site.

Thurston County

Puget Sound Energy (PSE) is the electrical utility service provider for this site. This site has an existing 12.5kV primary metering point of service from PSE.

Natural Gas

Bremerton

Gas would be supplied by Cascade Natural Gas. Presently, there is no gas service to the site.

Mason County

Gas would be supplied by Cascade Natural Gas and gas service is presently available at the site.

Thurston County

Gas would be supplied by Puget Sound Energy and gas service is presently available at the site.

Section 3. IMPACTS OF ALTERNATIVES

Based upon historical consumption of energy for other Department of Correction Operations, it is estimated that approximately 40 percent of this building's energy needs will be met by electrical power and 60 percent for fossil fuel. The building energy uses and energy sources are described below. In addition to the building energy needs, fuels will also be dispensed on site for fueling of the buses used for transportation of inmates and fuel for the state owned automobiles.

Electric Power

The largest consumptions of power on site are for lighting, building fans, refrigeration equipment supporting the kitchen and receptacle loads for office type equipment. The facility is used and operated 24 hours per day but the facility will have its highest usage with staff and visitors during the day shifts which occur between 7 AM and 5:00 PM.

The building will be provided with a back-up emergency generator to maintain operations in the event of a power outage.

Anticipated electric consumption is expected to be by in the rage of 6,600,000 kWh per year. The preliminary calculated power demand is 7 MW and the anticipated running load is expected to be in the 3.5 MW range.

Bremerton

In order to provide a new 12.5kV electrical service to this site, PSE will need to rebuild the existing SIN-25 medium voltage utility distribution feeder along State Route 3 to create a double circuit configuration for a distance of approximately 3.25 miles. This will provide a new dedicated feeder to the New Reception Center site. PSE will also need to upgrade the existing Sinclair Inlet substation in order to support the estimated load of the New Reception Center. PSE currently anticipates any electrical utility distribution system upgrades will be performed by utilizing existing overhead utility structures and existing utility right- of- way(s). As a result, there are no related significant environmental factors to consider at this time.

The largest consumptions of power on site are for lighting, building fans, refrigeration equipment supporting the kitchen and receptacle loads for office type equipment. The facility is used and operated 24 hours per day but the facility will have its highest usage at staff and visitor hours during the day shifts which occur between 7 AM and 5:00 PM.

The building will be provided with a back-up emergency generator to maintain operations in the event of a power outage.

Anticipated electric consumption is expected to be in the rage of 6,600,000 kWh per year. The preliminary calculated power demand is 7 MW and the anticipated running load is expected to be in the 3.5 MW range.

Mason County

In order to provide a new 12.5kV electrical service to this site, PUD3 will construct a new distribution substation on property that PUD3 currently owns at the intersection of Dayton-Airport Road and Shelton-Matlock Road. This new substation will be located approximately 2.85 miles away from the proposed New Reception Center Site. In addition to constructing a new substation, PUD3 will install a new dedicated feeder to the New Reception Center site. Mason County PUD3 currently anticipates any electrical utility distribution system upgrades will be performed by utilizing existing overhead utility structures and existing utility right- of- way(s). As a result, there are no related significant environmental factors to consider at this time.

Thurston County

Based on current PSE distribution system capacity, it is estimated by PSE that their existing distribution system will be sufficient to meet the electrical requirement of the New Reception Center as long as the actual running load is less than 4MW. The estimated running load for the New Reception Center is currently 3.5MW. As a result, it appears that the existing 12.5kV electrical service will be sufficient to meet the needs of the New Reception Center. Minor utility metering revisions will be made by PSE in order to accommodate the New Reception Center. There are no related significant environmental factors to consider at this time.

Natural Gas

Bremerton

The primary source of heating will be provided from natural gas. Gas would be supplied by Cascade Natural Gas. Presently, there is no gas service to the site and gas would be brought to the site with approximately one mile of gas extension along Lake Flora Road. Cascade Natural Gas had indicated that due to previous commitments for gas delivery that they will service this site from a interruptible, bundled (both supply and distribution service).Interruptible means that when/if utility gas supplies are at the maximum available delivery rate, gas would be curtailed for this site and the facility would utilize back-up fuels stored on site. Bundled service is service where the same utility company provides both the fuel as well as the pipeline and distribution.

During times of curtailment from the utility company, the facility heating systems will switch to propane as a back-up fuel from on-site storage tanks.

Gas (either natural gas or propane) will be the primary fuel for space heating. Natural gas will also be utilized for heating of domestic hot water. With a resident population of 1024 inmates, domestic type functions such as showering and operation of kitchens and laundries are

expected to represent approximately 60 percent of the gas usage and heating the other 40 percent of the gas usage.

Space heating will be provided from either high efficiency gas fired boilers or gas fired ventilation units. Domestic hot water will be provided from high efficiency gas fired boilers.

Preliminary estimates of gas consumption and peak demand requirements are provided in Tables 1 and 2 that follow.

Table 1

Estimated Gas Consumption		
Area of use	**Energy (kbtuh)/year**	**Percentage**
Heating	**13,979,648**	**39 percent**
Non-Heat (domestic uses)	**21,465,749**	**61 percent**
Total	**35,445,397**	

Table 2

Estimated Peak Demand Requirements (Equipment Sizing)	
Item	**Energy (btu/hr)**
Space Heating	**10,800,000**
Laundry-make-up air heating	**1,900,000**
Transportation building make-up air heating	**250,000**
Gas for dryers	**5,000,000**
Gas for cooking equipment	**1,500,000**
Domestic Hot Water	**7,110,000**
Total	**26,560,000**

Mason County

The primary source of heating will be provided from natural gas. Gas would be supplied by Cascade Natural Gas and gas service is presently available at the site. Cascade Natural Gas

had indicated that due to previous commitments for gas delivery that they will service this site from a interruptible, bundled (both supply and distribution service). Interruptible means that when/if utility gas supplies are at the maximum available delivery rate, gas would be curtailed for this site and the facility would utilize back-up fuels stored on site. Bundled service is service where the same utility company provides both the fuel as well as the pipeline and distribution.

During times of curtailment from the utility company, the facility heating systems will switch to propane as a back-up fuel to the natural gas provided from on-site storage tanks.

Gas (either natural gas or propane) will be used for space heating. Natural gas will also be utilized for heating of domestic hot water. With a resident population of 1024 inmates, domestic type functions such as showering and operation of kitchens and laundries are expected to represent approximately 60 percent of the gas usage and heating the other 40 percent of the gas usage. During times of curtailment of the natural gas supply from the utility company, propane gas will be utilized.

Space heating will be provided from either high efficiency gas fired boilers or gas fired ventilation units. Domestic hot water will be provided from high efficiency gas fired boilers.

Preliminary estimates of gas consumption and peak demand requirements are provided in Tables 3 and 4 that follow.

Table 3

Estimated Gas Consumption		
Area of use	**Energy (kbtuh)/year**	**Percentage**
Heating	**13,979,648**	**39 percent**
Non-Heat (domestic uses)	**21,465,749**	**61 percent**
Total	**35,445,398**	

Table 4

Estimated Peak Demand Requirements (Equipment Sizing)	
Item	**Energy (btu/hr)**
Space Heating	**10,800,000**
Laundry-make-up air heating	**1,900,000**
Transportation building make-up air heating	**250,000**

Gas for dryers	**5,000,000**
Gas for cooking equipment	**1,500,000**
Domestic Hot Water	**7,110,000**
Total	**26,560,000**

Thurston County

The existing site is serviced from a PSE interruptible, bundled (both supply and distribution service). Interruptible means that when/if utility gas supplies are at the maximum available delivery rate, gas would be curtailed for this site and the facility would utilize back-up fuels stored on site. Bundled service is service where the same utility company provides both the fuel as well as the pipeline and distribution.

During times of curtailment from the utility company, the facility heating currently will convert to diesel fuel as a back-up fuel from on site storage tanks.

Natural gas (or fuel oil when in curtailment) will be the primary fuel for space heating. Natural gas will also be utilized heating of domestic hot water. With a resident population of 1024 inmates, domestic type functions such as showering and operation of kitchens and laundries are expected to represent approximately 50 percent of the gas usage and heating the other 50 percent of the gas usage. During times of curtailment of the natural gas supply from the utility company, propane gas will be utilized.

Space heating will be provided from the existing high pressure central steam distribution plant with burners that primarily fire on natural gas and utilize fuel oil as a backup fuel. Steam is piped to the existing buildings through existing underground tunnels which will be extended to the new building. In some non-critical areas, gas fired ventilation units may be utilized. Domestic hot water will be provided from high efficiency gas fired boilers.

Preliminary estimates of gas consumption and peak demand requirements are provided in Tables 5 and 6 that follow.

Table 5

Estimated Gas Consumption		
Area of use	**Energy (kbtuh)/year**	**Percentage**
Heating	**20,850,100**	**49 percent**
Non-Heat (domestic uses)	**21,465,749**	**51 percent**

Total	**42,315,849**	

Table 6

Estimated Peak Demand Requirements (Equipment Sizing)	
Item	**Energy (btu/hr)**
Space Heating-existing heating plant	**32,500,000**
Laundry-make-up air heating	**1,900,000**
Transportation building make-up air heating	**250,000**
Gas for dryers	**5,000,000**
Gas for cooking equipment	**1,500,000**
Domestic Hot Water	**7,110,000**
Total	**48,260,000**

Fossil Fuel-Vehicle Usage

Bremerton

The New Reception Center utilizes diesel fuel for refueling of buses and gasoline for refueling of Department of Corrections owned vehicles. On site storage is anticipated for both of these fuels for the sizes and consumption rates indicated in Table 7. Consumption rates were determined from historical usage by the Department of Corrections at their existing reception center located in Mason County.

Mason County

The New Reception Center utilizes diesel fuel for refueling of buses and gasoline for refueling of Department of Corrections owned vehicles. Refueling will not occur on site and will occur at the nearby Washington Corrections Center at existing fueling stations.

Thurston County

The New Reception Center utilizes diesel fuel for refueling of buses and gasoline for refueling of Department of Corrections owned vehicles. On site storage is anticipated for both of these fuels for the sizes and consumption rates indicated in Table 9. Consumption rates were determined

from historical usage by the Department of Corrections at their existing reception center located in Mason County.

On Site Fuel Storage

Bremerton

Other than vehicle fueling and generator testing, the fuel stored on site is for back-up heating and power generation in the event of an interruption of the normal natural gas or electric utility service. Diesel and gasoline will be stored in double wall above-ground storage tanks with leak detection. Propane will be stored in above ground tanks. All tanks will meet regulatory requirements.

Vehicle-Gasoline Fueling: The site will have a new above ground storage tank sized in accordance with Table 7.

Vehicle-Diesel Fueling: The site will have a new above ground diesel tank which will be sized for diesel fueling and the emergency generators in accordance with Table 7.

Emergency Power Generators-Diesel: The site will have a new above ground diesel storage tank which will be sized for the emergency generators and vehicle diesel fueling in accordance with Table 7.

Heating Plant-Propane: The site will have on site propane storage to back-up the utility gas supply when curtailed by the local utility. The tanks will be sized in accordance with Table 7.

Table 7

Fuel Storage			
Fuel	**Average Gallons/month**	**Minimum estimated On-Site Storage Volume (gallons)**	**Sizing Criteria**
Diesel	**3,000-buses** **500 (for monthly generator testing)** **More fuel will be consumed in the event of interruption of normal power to the site.**	**20,000**	**2.5 days supply for generator (15,000 gallons) plus bus usage and generator testing**
Gasoline	**2,100-autos**	**3,000**	**Four week supply with30-40% reserve**
Propane	**More fuel will be consumed in the event**	**15,000**	**3 days supply with 20%**

	of interruption of natural gas to the site.		**reserve**

Mason County

The fuel stored on site is for back-up heating and power generation in the event of an interruption of the normal natural gas or electric utility service. Diesel will be stored in double wall above-ground storage tanks with leak detection. Propane will be stored in above ground tanks. All tanks will meet regulatory requirements.

Emergency Power Generators-Diesel: The site will have a new above ground diesel storage tank which will be sized for the emergency generators and vehicle diesel fueling in accordance with Table 8.

Heating Plant-Propane: The site will have on site propane storage to back-up the utility gas supply when curtailed by the local utility. The tanks will be sized in accordance with Table 8.

Table 8

Fuel Storage			
Fuel	**Average Gallons/month**	**Minimum estimated On-Site Storage Volume (gallons)**	**Sizing Criteria**
Diesel	**More fuel will be consumed in the event of interruption of normal power to the site.**	**20,000**	**2.5 days supply for generator (15,000 gallons) plus bus usage and generator testing**
Propane	**More fuel will be consumed in the event of interruption of natural gas to the site.**	**15,000**	**3 days supply with 20% reserve**

Thurston County

Other than vehicle fueling and generator testing, the fuel stored on site is for back-up heating and power generation in the event of an interruption of the normal natural gas or electric utility service. Fuel will be stored in double wall above-ground storage tanks with leak detection installed in accordance with regulatory requirements.

Vehicle-Gasoline Fueling: The site currently has a 1,500 gallon gasoline located at the maintenance building which will be replaced with a new above ground storage tank sized in accordance with Table 9.

Vehicle-Diesel Fueling: The site has a 500 gallon gasoline tank which will be replaced with a new above ground storage tank sized in accordance with Table 9.

Heating Plant-Diesel: The existing heating plant has an above ground 4,000 gallon storage tank that will be retained. Its capacity will be supplemented so that the combined on-site storage capacity of the heating and power plant meets the needs indicated in Table 9.

Emergency Power Generators-Diesel: The existing electrical service has back-up emergency generators serviced from an above ground 6,000 gallon storage tank that will be retained. Its capacity will be supplemented so that the combined on-site storage capacity of the heating and power plant meets the needs indicated in Table 9.

Table 9

Fuel Storage			
Fuel	**Average Gallons/month**	**Minimum Estimated On-Site Storage Volume (gallons)**	**Sizing Criteria**
Diesel-Vehicle Fueling	**3,000-buses**	**4,000**	**Four week supply with 30-40% reserve**
Diesel-Emergency Generators and Heating Plant	**500 (for monthly generator testing)** **More fuel will be consumed in the event of interruption of natural gas or power to the site.**	**15,000 generators** **10,000 boilers** **25,000 gallons total**	**2.5 days of supply for generator** **3 days supply for boilers**
Gasoline-Vehicle Fueling	**2,100-autos**	**3,000**	**Four week supply with30-40% reserve**

Section 4. MITIGATION

Required Mitigation Measures

- This project will comply with the Washington State Energy Code to reduce energy consumption.
- Offsite gas and electrical distribution will occur for the Bremerton and Mason County sites within existing right-of-way or utility easements wherever possible. Gas will be placed underground and electrical service to the site will largely use existing overhead power poles. At the present time, the utility providers for the Thurston County site have not indicated a need to upgrade the offsite gas and electrical distributions to service this site. Should modifications be required, it is anticipated that these would occur within existing right-of way or utility easements wherever possible.

Proposed Mitigation Measures

The project will meet or exceed the Washington State Energy Code requirements in effect at the time of permitting. Additionally the project will exceed federal energy standards (adopted in ASHRAE Standard 90.1-Energy Standard for buildings) by at least 15% (Thurston County) and 25% (Mason and Bremerton). Measures to mitigate potential energy and natural resource impacts may include the following:

- Heat Recovery on 100% outside air systems greater than 5,000 cfm. Heat recovery on systems smaller than 5000 cfm that operate 24 hours per day.
- Heat Recovery on minimum outside air systems with more than 5,000 cfm outside air
- Demand Controlled Ventilation on minimum outside air systems with less than 5,000 cfm of outside air
- High efficiency condensing boilers (92% efficiency or greater)
- Water heaters (96% efficiency or greater)
- Low flow fixtures (shower heads) to reduce hot water consumption
- Passive cooling for areas that do not operate 24 hours per day that are located outside the inmate areas. This include spaces associated with visiting, exterior administration, staff support, and custody.
- Low transport energy for fans/pumps
- Low flow kitchen hoods controlled by temperature with variable make-up air.
- Modular water source heat pumps for process cooling (telecommunication rooms and control rooms) and building environmental cooling when cooling is required in select areas. Use rejected heat to preheat domestic hot water. Use heat pumps for heating when environmental cooling is not required.

Section 5. SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Additional energy resources (energy and fossil fuels) would be consumed in connection with this project.

APPENDIX F

Phase I And II Environmental Site Assessments

Environmental Health Technical Report

PREPARED FOR:

Integrus Architecture
117 South Main Street, Suite 100
Seattle, WA 98104

PROJECT:

DOC Westside Prison Reception Center

PREPARED BY:

EHS-International, Inc.

Miguel A. Ortega, L.G.
Principal, Geologist

DATE:

August 2011

1.1 INTRODUCTION

EHS – International, Inc. (EHSI) utilized three levels of environmental investigation to assess the Environmental Settings of the three site alternative properties. As the basis for baseline environmental evaluation, EHSI executed Phase I Environmental Site Assessments (ESAs) of the three site alternative properties (Bremerton Site, Mason County Site, and the Thurston County Site. In addition, a Phase II ESA was executed within the current and former fleet fueling system areas of the Thurston County Site alternative property. The Thurston County Site alternative property has existing buildings that will be impacted by the proposed Westside Prison Reception Center design footprint. EHSI reviewed available Haz-Mat reports to assess the relevant property buildings for asbestos and lead based paint (Haz-Mat). EHSI also used available Haz-Mat data to provide an empirical estimate of potential Haz-Mat abatement costs. The subsequent sub-sections of this chapter describe the environmental assessment procedures (Phase I ESA and Phase II ESA) and results, as well as conclusions from the Environmental Settings assessments. In addition, the subsequent sub-sections provide the Haz-Mat assessment results, an abatement cost estimate, and conclusions of the Environmental Settings assessment.

1.2 SCOPE OF WORK PHASE I ESA

The scope of services for the three site alternative properties Phase I ESAs included the following subtasks.

Review readily available source information regarding current uses of the properties and their surroundings from County Assessor records and compile information obtained during interviews of local agencies.

Review readily available source information with respect to the historical uses of the site alternative properties including:

- Review of historical aerial photographs;
- Polk City Directories; and
- Historical Kroll and Sanborn Atlas Collections.

Review federal and state environmental database records for adjacent and nearby properties to the site alternative properties with known or suspected environmental liability.

Interviews of both, past and present available site alternative properties owners and available neighboring property owners.

Conduct a detailed visual site reconnaissance of the site alternative properties and cursory reconnaissance of the immediate site vicinity to observe existing environmental conditions.

Evaluate the site alternative properties to determine whether environmental conditions exist that might result in on-site migration of contamination from off-site source(s).

Evaluate the site alternative properties to determine whether environmental conditions exist that might result in off-site migration of on-site contaminants (if any are present) by air emissions, groundwater, or other media to surrounding properties.

The site alternative properties Phase I ESAs meet the 2005 Revised Version of the ASTM guidance on “Standard Practice for Environmental Site Assessment: Phase I Environmental Site

Assessment Process" (Designation E 1527-05) and US Environmental Protection Agency (EPA)All Appropriate Inquiries (AAI) Rule (40 CFR, Part 312).

EHSI assessed each of the site alternative properties for Recognized Environmental Conditions (RECs). RECs are defined in ASTM Standard E 1527-05 (2005) as "the presence or likely presence of regulated hazardous or dangerous wastes and/or substances, including petroleum products, under conditions that indicate an existing release, a past release, or a material threat of a release into the structures of the property or into the ground, groundwater, or surface water of the property."

1.3 SCOPE OF WORK PHASE II ESA

The purpose of the Phase II ESA was to assess the Thurston County Site alternative property for the presence of petroleum hydrocarbon contamination in soil. The investigated locations within the property were the current and former on-site fleet fueling system areas. The focus of the Phase II ESA were the former fleet fuel dispenser island,the former underground storage tank (UST) excavation area, and the existing fleet fueling above ground storage tank (AST) and associated dispensers area.

EHSI drilled three soil borings with a mobile B-81 hollow-stem auger drill rig. Soil samples collected from the soil borings drilled at the Thurston County Site alternative property were submitted to an environmental laboratory for analysis.

The three Thurston County Site alternative property soil borings were placed in the following locations:

- Soil boring (B1) was drilled proximal to the existing fleet fueling AST and dispensers on the southwest quadrant of the Thurston County Site alternative property, and;
- Two soil borings (B-2 and B-3) were positioned to sample soils at the former fleet fuel dispensing islands and co-located USTs.

1.4 SCOPE OF WORK HAZ-MAT REVIEW

EHSI reviewed available Haz-Mat reports for the Thurston County Site alternative property. Utilizing available Haz-Mat reports, EHSI personnel assessed the potential for the presence of Haz-Mat within select existing buildings of the Thurston County Site alternative property. More specifically, EHSI utilized available data to determine if Haz-Mat exists in buildings that will be impacted by the proposed design footprint of the Westside Prison Reception Center. The available Haz-Mat data was also utilized to formulate an estimate of Haz-Mat abatement costs.

2 ENVIRONMENTAL SETTINGS ASSESSMENTS RESULTS

The following sections present the results of the Environmental Settings Assessments for the three site alternative properties.

2.1 ENVIRONMENTAL ASSESSMENT BREMERTON SITE

The location of the Bremerton Site alternative property is at the southeastern corner of the intersection of State Highway 3 and SW Lake Flora Road in Bremerton, Washington 98367.

2.1.1 SITE OVERVIEW

The Bremerton Site alternative property is located in Bremerton, Washington, and consists of a

cluster of six tax parcels covering a total of 148.78 acres. The Bremerton Site alternative property is undeveloped forest land.

2.1.2 ADJACENT PROPERTIES

To the north, the Bremerton Site alternative property borders a large tract of vacant forested land. The triangularly-shaped site alternative property is bounded on the southwest by SW Lake Flora Road, forested land, and several scattered residences. The site alternative property is bounded on the east by a Christmas tree farm. State Highway 3 is located at the northwestern "tip" of the site alternative property.

2.1.3 SITE RECONNAISSANCE AND DATABASE SEARCH RESULTS

EHSI conducted an inspection of the Bremerton Site alternative property on June 7, 2011. There were no weather related limitations occurring during the inspection. The presence of dense brush and trees precluded direct access to much of the interior of the site alternative property.

An Environmental Data Resources, Inc. (EDR) Database Search Report of the Bremerton Site alternative property for publicly available information contained in federal and state environmental databases was done to ASTM Standard search radii of 1/8-mile to 1 mile. The Bremerton Site alternative property is not listed on any federal or state regulatory environmental databases.

A review of the EDR database search report, including sites listed in the orphan site summary identified no sites with either documented releases of hazardous materials or facilities that manage hazardous materials in significant quantities within the specified ASTM Standard search radii of 1/8-mile to 1 mile.

2.1.4 CURRENT OPERATIONS

The Bremerton Site alternative property is currently vacant undeveloped land and is covered with trees and low brush.

2.1.5 FINDINGS

The Bremerton Site alternative property has remained vacant forest land since at least 1951. No evidence of significant chemical handling, use, or storage was identified for the site alternative property. No evidence of past or current existence of USTs was found for the site alternative property.

2.1.6 CONCLUSIONS

Based on information gathered as part of this Environmental Settings Assessment, no RECs were identified for the Bremerton Site alternative property or its environs.

2.1.7 RECOMMENDATIONS

Based on our research in conducting this Environmental Settings Assessment, we believe that a thorough analysis of potential environmental liabilities has been conducted in accordance to the ASTM Phase I ESA Standard (E 1527-05) and USEPA AAI Rule at the Bremerton Site alternative property. Based upon our Environmental Settings Assessment research findings, no additional environmental settings assessment appears warranted at this time.

2.2 ENVIRONMENTAL ASSESSMENT MASON COUNTY SITE

The address for the Mason County Site alternative property is 1100 West Dayton Airport Road in Shelton, Washington 98584.

2.2.1 SITE OVERVIEW

The Mason County Site alternative property includes approximately 50 acres set within an irregularly-shaped Mason County parcel covering a total of 497 acres of land. The Mason County Site alternative property is currently vacant forested land.

2.2.2 ADJACENT PROPERTIES

To the north, the Mason County Site alternative property borders vacant forestland. Undeveloped forest land extends to the south of the site alternative property with a Department of Corrections facility beyond. The site alternative property is bounded on the west by State Highway 112 and a Mason County PUD cogenerating station. The site alternative property is bounded on the east by vacant forested land, a single-family residence, and an auto wrecking yard (Shelton Auto Wrecking).

2.2.3 SITE RECONNAISSANCE AND DATABASE SEARCH RESULTS

EHSI conducted an inspection of the Mason County Site alternative property on June 7, 2011. There were no weather or access related limitations occurring during the inspection.

An EDR Database Search Report of the Mason County Site alternative property for publicly available information contained in federal and state environmental databases was done to ASTM Standard search radii of 1/8-mile to 1 mile. The Mason County Site alternative property is not listed on any federal or state regulatory environmental databases.

A review of the EDR database search report, including sites listed in the orphan site summary identified two sites with either documented releases of hazardous materials or facilities that manage hazardous materials in significant quantities.

The closest listed facility, Shelton Auto Wrecking is located at 1501 West Dayton Airport Road. Shelton Auto Wrecking is located adjacent and to the northeast of the Mason County Site alternative property in an inferred up-gradient hydrologic position. The facility appears on the ALLSITES and Solid Waste Facility databases as a recycling business. No violations or reported releases are noted for this business. Based on the absence of reported releases and/or violations, EHSI does not consider this adjacent and up-gradient facility as a potential source for REC to the Mason County Site alternative property at the time of our assessment.

The second evaluated site is the Mason County Landfill located at 501 West Eells Hill Road. The Mason County Landfill is located across Highway 112, to the west of the Mason County Site alternative property in an up-gradient hydrologic position. The Mason County Landfill appears on the Landfill, CSCSL-NFA, and UST databases. Based on a determination of No Further Action (NFA) by the Washington State Department of Ecology (Ecology) Volunteer Cleanup Program (VCP), EHSI does not consider this Mason County Landfill as a potential source for REC to the site alternative property at the time of our assessment.

The other listed facilities are located either down-gradient or greater than a 1/8-mile radius from the Mason County Site alternative property and EHSI does not consider these properties as potential sources of RECs to the Mason County Site alternative property.

2.2.4 CURRENT OPERATIONS

The Mason County Site alternative property currently vacant and is covered with trees and low brushes.

2.2.5 FINDINGS

The Mason County Site alternative property has been vacant forest land since at least 1951. No evidence of significant chemical handling, use, or storage was identified for the Mason County Site alternative property. No evidence of past or current USTs was found for the Mason County Site alternative property.

2.2.6 CONCLUSIONS

Based on information gathered as part of this Environmental Settings Assessment, no RECs were identified for the Mason County Site alternative property or its environs.

2.2.7 RECOMMENDATIONS

Based on our research in conducting this Environmental Settings Assessment, we believe that a thorough analysis of potential environmental liabilities has been conducted in accordance to the ASTM Phase I ESA Standard (E 1527-05) and USEPA AAI Rule at the Mason County Site alternative property. Based upon our Environmental Settings Assessment research findings, no additional environmental settings assessment appears warranted at this time

2.3 ENVIRONMENTAL ASSESSMENT THURSTON COUNTY

The address for the Thurston County Site alternative property is 20311 Highway 9 SW in Ground Mound, Washington 98531.

2.3.1 SITE OVERVIEW

The Thurston County Site alternative property includes a 209-acre irregularly-shaped Thurston County parcel. The site alternative property is currently occupied by a complex of buildings comprising the former Maple Lane Juvenile Facility.

2.3.2 ADJACENT PROPERTIES

To the north, the Thurston County Site alternative property borders Highway 9 SW and several residential structures. Undeveloped forest land extends to the east of the site alternative property. The site alternative property is bounded on the west by a large dairy farm. The site alternative property is bounded on the south by a slough and vacant pasture land.

2.3.3 SITE RECONNAISSANCE AND DATABASE SEARCH RESULTS

EHSI conducted an inspection of the Thurston County Site alternative property on June 24, 2011. There were no weather or access related limitations occurring during the inspection.

An EDR Database Search Report of the Thurston County Site alternative property for publicly available information contained in federal and state environmental databases was done to ASTM Standard search radii of 1/8-mile to 1 mile.

The Thurston County Site alternative property is listed on the CSCSL-NFA regulatory environmental database.

EHSI reviewed a Historical Investigation and Current Site Condition Summary Report for the Thurston County Site prepared on December 4, 2008 by HartCrowser (HartCrowser, 2008). The report describes a 6,000-gallon fiberglass heating oil UST installed in 1980 to furnish backup fuel to the property steam plant boiler. Following the reported loss of approximately 600 gallons of diesel fuel, the UST was removed in 1997. A small hole was present approximately 14 inches below the top of the UST and petroleum contaminated soils (PCS) were present at the bottom of the UST removal excavation. Approximately 40 cubic yards of PCS was removed and placed on-site for treatment. A soil boring was advanced at the former UST removal excavation location and PCS were present from nine feet below the bottom of the UST removal excavation to the uppermost water table located at a depth of 30 feet below-ground surface (BGS).

The HartCrowser report notes that Nowicki and Associates, Inc. (Nowicki) installed four groundwater monitoring wells at the Thurston County Site alternative property in February of 1998. Nowicki began quarterly groundwater monitoring of the well field in March of 1998. However, no analytical groundwater analytical results were available for review. In 2000, personnel from Nowicki noted the presence of a heavy oil sheen and strong diesel odors in a groundwater sample from a newly installed well.

HartCrowser installed five wellpoints to assess groundwater entering the slough adjacent to the south of the release area. They also sampled surface water and sediments from the slough. The results of this sampling and testing demonstrated that the petroleum hydrocarbon contaminants did not impact the slough.

To facilitate soil and groundwater amendment, HartCrowser injected approximately 950 gallons of hydrogen peroxide at the release area.

Subsequent groundwater monitoring established compliance with Washington State Model Toxics Control Act (MTCA) Method A Groundwater Cleanup Levels and the Thurston County Site alternative property was granted a decision of NFA from Ecology on January 9, 2009.

A review of the EDR database search report, including sites listed in the orphan site summary identified no other sites with either documented releases of hazardous materials or facilities that manage hazardous materials in significant quantities.

2.3.4 CURRENT OPERATIONS

The Thurston County Site alternative property is currently utilized as a Washington Department of Social and Health Service (DSHS) juvenile correctional facility.

2.3.5 FINDINGS

The Thurston County Site alternative property was developed with the existing administration building as a girl's reformatory in 1914. The facility was expanded to its present size and configuration in various phases during the 1960s, 1980s, and 1990s. The Thurston County Site alternative property is currently served by three ASTs for motor vehicle fueling and heating oil.

A central steam plant boiler on the southern portion of the Thurston County Site alternative property was historically supplied by a heating fuel UST. The 6,000-gallon capacity diesel fuel UST was installed in 1980 and removed in 1997 along with 40 cubic yards of contaminated soil.

Soil and groundwater amendment was done using hydrogen peroxide injection at the source area. Groundwater monitoring over the course of nine years demonstrated compliance with MTCA Method A Groundwater Cleanup Levels. The residual soil contamination was left in place to degrade under natural attenuation. After review of the cleanup and monitoring reports, Ecology granted the Thurston County Site alternative property a decision of NFA on January 9, 2009. In light of the NFA decision by Ecology, the past release of heating oil near the central steam plant is not considered a REC for the property.

A motor vehicle fueling system was formerly used on the southern portion of the Thurston County Site alternative property. The system was reportedly served by USTs beneath a central dispenser island. The USTs and some contamination were reportedly removed in the late 1980s. However, no reports or other documentation of the UST removal/ soil remediation was provided for EHSI's review.

2.3.6 CONCLUSIONS

The historical on-site fuel storage and dispensing systems present a material threat of a release of petroleum products to the Thurston County Site alternative property subsurface and is therefore a REC for the Thurston County Site alternative property.

2.3.7 RECOMMENDATIONS

Based on our research in conducting this Environmental Settings Assessment, subsurface sampling and testing is recommended to assess subsurface environmental conditions within the former fueling system areas of the Thurston County Site alternative property.

2.4 PHASE II ESA THURSTON COUNTY RESULTS

The purpose of the Phase II ESA was to assess potential petroleum hydrocarbon soil contamination within the Thurston County Site alternative property current and former fleet fueling system areas. Three soil borings were drilled in the course of this study. EHSI placed one soil boring proximal to the south side of the current fleet fueling AST and dispensers to assess for impacts from spillage, overflows, etc. EHSI also placed two soil borings within the asphalt-patched former fleet fueling UST-hold and co-located dispenser on the southern portion of the Thurston County Site alternative property to evaluate soil conditions.

EHSI submitted soil samples from the Thurston County Site alternative property soil borings to Friedman & Bruya, Inc. (FBI) of Seattle, Washington for analyses. FBI analyzed the soil samples for gasoline-range total petroleum hydrocarbons (TPH) using Washington State Test Method NWTPH Gasoline extended (Gx), for benezene, toluene, ethylbenzene, and xylene (BTEX) using US Environmental Protection Agency (EPA) Test Method 8021B, and for diesel to oil-range TPH by Washington State Test Method NWTPH diesel extended (Dx).

The depth of the borings ranged from 10 to 15 feet BGS. The subsurface materials encountered beneath the site alternative Site generally consisted of sandy gravel and cobbles (GW) as per the Unified Soil Classification System (USCS).

EHSI field personnel did not observe elevated photoionization detector (PID) readings, odors, staining, or other indications of potential contamination in the soil samples. No gasoline-range TPH or BTEX was detected in the samples analyzed. The analytical results for soil sample B3-10 (10 feet BGS) contained oil-(420 mg/kg) and diesel-range TPH (700 mg/kg) at concentrations

below the applicable State of Washington MTCA Method A soil Cleanup Levels for oil- to diesel-range TPH in Unrestricted Land Uses of 2,000 mg/kg (173-340 WAC).

Based on the results of the Phase II ESA, no adverse environmental impacts are associated with the Thurston County Site alternative property existing and former fleet fueling systems areas.

Based on site observation, physical testing, and regulatory review, it is our opinion that no additional environmental assessment of the Thurston County Site alternative property existing and former fleet fueling systems areas is warranted at this time.

2.5 RESULTS HAZ-MAT REVIEW THURSTON COUNTY

A certified asbestos inspector and designer reviewed the available hazardous materials inspections reports and noted the documented presence of asbestos containing materials in the Thurston County Site alternative property buildings. Previous asbestos sampling in 1989 and 2006 reported that the thermal system insulation on piping elbows and fittings, floor tiles and mastics, cement asbestos board and assumed pipe insulation behind wet walls and buried steam lines are asbestos-containing materials (ACM).

Demolition and/or renovation activities by contractors may expose concealed suspect ACM. Contingency plans should include stopping work on identification of concealed suspect ACM, evacuation of the area, and sampling by a certified AHERA inspector. Asbestos identified in the previous surveys should not be disturbed unless handled by personnel who are properly trained and certified in asbestos work.

Previous lead-based paint sampling reported detectable levels of lead in the interior and exterior paints at the Thurston County Site alternative property buildings. Washington State Labor and Industries require employers conduct a hazard assessment and take appropriate worker protection precautions whenever paint is disturbed that has detectable quantities of lead. Since the type of work planned (e.g., sawing, grinding or drilling and/or general demolition) is likely to disturb the lead-containing paint, the contractor should perform an initial lead exposure assessment to determine if personal protective measures and work practices are required.

2.5.1 THURSTON COUNTY HAZ-MAT ABATEMENT ESTIMATE

Hazardous Materials Inspection Survey and Reports for seven Maple Lane Juvenile Detention Center Buildings:	$22,600
Lead Paint Exposure Assessment (interior and exterior):	$1,250
Asbestos abatement of known thermal system insulation on piping elbows and fittings, floor tiles and mastics, cement asbestos board:	$42,500
Abatement of assumed asbestos thermal system insulation on piping elbows and fittings in wet walls and underground:	$82,000
Total:	$147,910*

*Cost estimates for asbestos removal are based on a number of factors; considerations for this project include current understanding of the scope of proposed work, the quantity of known ACM contaminated material found in the facility, and current hazard abatement industry costs.

This cost estimate represents anticipated competitive market bids for hazardous materials removal and disposal. Future changes to codes and regulations governing the handling and disposal of ACM will require revision of these cost estimates. EHSI recommends that a 15% contingency factor be added to these estimates to allow for future business conditions and the potential to have removal of additional concealed materials. EHSI used recent, prevailing wage hazardous material removal bid and cost-estimate results to calculate the estimated costs for removal of hazardous materials. This cost includes allowances for labor, materials, equipment, transportation, disposal, overhead, sales tax, notifications, and profit. A contingency for concealed materials and demolition listed, have not been included. Additionally, the cost estimate does not include the abatement design fees, abatement oversight and monitoring fees, the contractor's insurance and bonding fees. Unit prices vary based on the quantity of material to be removed.

2.6 SUMMARY OF SITE ALTERNATIVE PROPERTIES ENVIRONMENTAL SETTINGS

The results of EHSI's Alternative Properties Environmental Settings Assessment indicate that none of the alternative properties have environmental liabilities that could exclude these properties for development as the new Westside Prison Reception Center. The Thurston County Site alternative property is the only currently developed alternative property. This site has buildings that will be impacted by the proposed Westside Prison Reception Center design footprint. Thus, this site presents potential environmental remediation costs not present in the Bremerton Site or Mason County Site alternative properties. Our estimate of **$**147,900 for Haz-Mat assessment and abatement should be weighed in with other development cost factors in the selection of the Westside Prison Reception Center site.

EHS–International, Inc.

BREMERTON SITE
PHASE I ENVIRONMENTAL SITE ASSESSMENT
FINAL REPORT

Prepared for:
Mr. Jim Petrich
Integrus Architecture
117 South Main Street, Suite 100
Seattle, Washington 98104

Site Location:
State Highway 3 & Lake Flora Road
Bremerton, Washington 98367

Prepared by:
EHS – International, Inc.
13228 NE 20th Street, Suite 100
Bellevue, Washington 98005

June 24, 2011

BREMERTON SITE
PHASE I ENVIRONMENTAL SITE ASSESSMENT
STATE HIGHWAY 3 & SW LAKE FLORA ROAD
BREMERTON, WASHINGTON 98367

FINAL REPORT

Prepared for:
Mr. Jim Petrich
Integrus Architecture
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Prepared by:
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Bellevue, Washington 98005

June 24, 2011

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EXECUTIVE SUMMARY

EHS - International, Inc. (EHSI) prepared this Final Report to document a Phase I Environmental Site Assessment (ESA) of the Bremerton Site property (subject property) located in Bremerton, Washington. Mr. Jim Petrich of Integrus Architecture requested the Phase I ESA to accomplish due diligence for a potential purchase of the property. Mr. Petrich, gave EHSI authorization to proceed with the Phase I ESA project in October 2010. The location of the subject property is at the eastern corner of the intersection of State Highway 3 and SW Lake Flora Road, Bremerton, Washington 98367.

SITE OVERVIEW

The subject property is located in Bremerton, Washington, and consists of a cluster of six tax parcels covering a total of 148.78-acres. The subject property is undeveloped forest land.

ADJACENT PROPERTIES

To the north, the subject property borders a large tract of vacant forested land. The triangularly-shaped subject property is bounded on the southwest by SW Lake Flora Road, forested land, and several scattered residences. The subject property is bounded on the east by a Christmas tree farm. State Highway 3 is located at the northwestern "tip" of the subject property.

SITE RECONNAISSANCE AND DATABASE SEARCH RESULTS

EHSI conducted an inspection of the subject property on June 7, 2011. There were no weather related limitations occurring during the inspection. The presence of dense brush and trees precluded direct access to much of the interior of the subject property.

An Environmental Data Resources, Inc. (EDR) Database Search Report of the subject property for publicly available information contained in federal and state environmental databases was done to ASTM search radii. The subject property is not listed on any federal or state regulatory environmental databases.

A review of the EDR database search report, including sites listed in the orphan site summary identified no sites with either documented releases of hazardous materials or facilities that manage hazardous materials in significant quantities within the specified ASTM Standard search radii.

CURRENT OPERATIONS

The subject property currently vacant undeveloped land and is covered with trees and low brush.

FINDINGS

The subject property has remained vacant forest land since at least 1951. No evidence of significant chemical handling, use, or storage was identified for the subject property. No evidence of past or current underground storage tanks (USTs) was found for the subject property.

CONCLUSIONS

Based on information gathered as part of this Phase I ESA, no RECs were identified for the subject property or its environs.

RECOMMENDATIONS

Based on our research in conducting this Phase I ESA, we believe that a thorough analysis of potential environmental liabilities has been conducted in accordance to the ASTM Phase I ESA Standard (E 1527-05) and USEPA AAI Rule at the subject property. Based upon our Phase I research findings, no additional action appears warranted at this time.

1 INTRODUCTION

EHSI prepared this Final Report to document a Phase I ESA)of the Bremerton Site property (subject property) located in Bremerton, Washington. Mr. Jim Petrich of Integrus Architecture requested the Phase I ESA to accomplish due diligence for a potential purchase of the property. Mr. Petrich, gave EHSI authorization to proceed with the Phase I ESA project in October 2010. The location of the subject property is at the eastern corner of the intersection of State Highway 3 and SW Lake Flora Road, Bremerton, Washington 98367 (Figure 1).

1.1 REPORT ORGANIZATION

This report consists of an executive summary, followed by sections which describe elements of EHSI's Phase I ESA. Two figures, a table, and two supporting appendices accompany this report. Figure 1 is the site location map and Figure 2 is the site plot plan. Appendix A provides select site photographs and Appendix B has a copy of the EDR database search report.

1.2 PHASE I ESA PURPOSE

The purpose of the Phase I ESA is to gather and review historical and current land use information from various sources to identify RECs on or near the subject property. RECs can impact the value of the property and impact the cost and schedule for site redevelopment.

1.3 PHASE I ESA INVOLVED PARTIES

Mr. Jim Petrich of Integrus Architecture selected EHSI to conduct a Phase I ESA on the subject property. Integrus Architecture is working behalf of the Washington State Department of Corrections which is considering purchasing the subject property.

2 PHASE I ESA SCOPE OF WORK

The scope of services for the subject property Phase I ESA included the following subtasks:

- Review readily available source information regarding current uses of the property and its surroundings from Kitsap County Assessor records, and compile information obtained during interviews of local agencies.
- Review readily available source information with respect to the historical uses of the property including:
    - Historical aerial photographs from EDR aerial photo package (EDR 2011) and map websites;
    - Polk City Directories – Not available;
    - Historical Sanborn (no coverage) and Kroll Atlas Collections for Kitsap County, Washington from the Seattle Public Library;
- Review federal and state environmental database records for properties with known or suspected environmental liability from the EDR regulatory database records search report.
- Interview both past and present available subject property owners.
- Interview available neighboring property owners.

- Conduct a detailed visual site reconnaissance of the property and cursory reconnaissance of the immediate site vicinity to observe existing conditions.
- Evaluate whether environmental conditions exist that might result in on-site migration from off-site sources.
- Evaluate whether environmental conditions exist that might result in off-site migration of on-site contaminants (if any) by air emissions, groundwater, or other media.

The content of this report follows the 2005 Revised Version of the ASTM guidance on "Standard Practice for Environmental Site Assessment: Phase I Environmental Site Assessment Process" (Designation E 1527-05) and USEPA AAI Rule (40 CFR, Part 312). The contents of this report satisfy the agreed upon scope of services as defined by our October 10, 2010 proposal from EHSI to Arch Integrus and the above-cited ASTM Standard.

RECs are defined in ASTM Standard E 1527-05 (2005) as "the presence or likely presence of regulated hazardous or dangerous wastes and/or substances, including petroleum products, under conditions that indicate an existing release, a past release, or a material threat of a release into the structures of the property or into the ground, groundwater, or surface water of the property."

2.1 PROPERTY LEGAL DESCRIPTION

The Kitsap County parcel tax ID numbers for the subject property are: 222301-1-004-1008, 222301-1-005-1007, 222301-1-006-1006, 222301-1-007-1005, 222301-1-008-1004, and 222301-1-009-1003. The property legal descriptions are as follow:

Parcel #1:

22231W
LOT 1 OF SEGREGATION REQUEST RECORDED UNDER AUDITOR'S FILE NO. 9604120038; THAT PORTION OF THE NORTHEAST QUARTER AND THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 23 NORTH, RANGE 1 WEST, W.M., LYING SOUTHEASTERLY OF HIGHWAY 14 AS NOW ESTABLISHED AND NORTHEASTERLY OF LAKE FLORA ROAD AS NOW ESTABLISHED, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NORTHEAST QUARTER OF SECTION 22; THENCE N88*48'36 W ALONG THE NORTH LINE OF SAID SUBDIVISION A DISTANCE OF 1511.37 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING N88*48'36 W ALONG SAID NORTH LINE A DISTANCE OF 4560.54 FEET TO THE NORTH QUARTER CORNER OF SAID SECTION 22; THENCE S87*29'21 W ALONG THE NORTH LINE OF SAID NORTHWEST QUARTER OF SECTION 22, A DISTANCE OF 352.59 FEET TO THE SOUTHEASTERLY MARGIN OF SAID HIGHWAY 14; THENCE S46*01'37 W ALONG SAID SOUTHEASTERLY MARGIN, A DISTANCE OF 161.35 FEET TO THE INTERSECTION WITH THE NORTHEASTERLY MARGIN OF SAID LAKE FLORA ROAD; THENCE S35*34'11 E ALONG SAID NORTHEASTERLY MARGIN A DISTANCE OF 877.09 FEET; THENCE LEAVING SAID MARGIN N49*23'44 E A DISTANCE OF 362.83 FEET TO THE POINT OF CURVATURE OF A CURVE, THE RADIAL CENTER OF WHICH BEARS S40*36'16 E A DISTANCE OF 300.00 FEET; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE PASSING THROUGH A CENTRAL ANGLE OF 82*22'37 A DISTANCE OF 431.33 FEET TO A POINT OF TANGENCY; THENCE S48*13'39 E A DISTANCE OF 248.31 FEET; THENCE N41*46'21 E A DISTANCE OF 994.64 FEET TO THE POINT OF BEGINNING. EXCEPT ANY PORTION LYING WITHIN LAKE FLORA ROAD AS RECORDED UNDER AUDITOR'S FILE

NO. 8407090098. SUBJECT TO AND TOGETHER WTH EASEMENTS AS DESCRIBED UNDER AUDITOR'S FILE NO. 9604120038. LESS NON-FOREST LAND PORTION LYING WITHIN THE NORTHWEST QUARTER OF SAID SECTION 22, SEGREGATED TO ACCOUNT NUMBER 222301-1-004-1107.

Parcel #2:
22231W
LOT 2 OF SEGREGATION REQUEST RECORDED UNDER AUDITOR'S FILE NO. 9604120038; BEING THAT PORTION OF THE NORTHEAST QUARTER OF SECTION 22, TOWNSHIP 23 NORTH, RANGE 1 WEST, W.M., DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID SECTION 22; THENCE NORTH 88*48'36 WEST ALONG THE NORTH LINE OF SAID SUBDIVISION A DISTANCE OF 148.91 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING NORTH 88*48'36 WEST A DISTANCE OF 1362.46 FEET; THENCE SOUTH 41*46'21 WEST A DISTANCE OF 994.64 FEET; THENCE SOUTH 48*13'39 EAST A DISTANCE OF 715.50 FEET; THENCE NORTH 51*24'19 EAST A DISTANCE OF 1907.88 FEET TO THE POINT OF BEGINNING. SUBJECT TO AND TOGETHER WITH EASEMENTS AS PER AUDITOR'S FILE NO. 9604120038.

Parcel #3:
22231W
LOT 3 OF SEGREGATION REQUEST RECORDED UNDER AUDITOR'S FILE NO. 9604120038; BEING THAT PORTION OF THE NORTHEAST QUARTER OF SECTION 22, TOWNSHIP 23 NORTH, RANGE 1 WEST, W.M., DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHEAST CORNER OF SAID SECTION 22; THENCE NORTH 88*48'36 WEST ALONG THE NORTH LINE OF SAID SUBDIVISION A DISTANCE OF 148.91 FEET; THENCE SOUTH 51*24'19 WEST A DISTANCE OF 1907.88 FEET; THENCE SOUTH 48*13'39 EAST A DISTANCE OF 781.90 FEET; THENCE NORTH 41*46'21 EAST A DISTANCE OF 771.21 FEET; TO THE POINT OF CURVATURE OF A CURVE THE RADIAL CENTER OF WHICH BEARS SOUTH 48*13'39 EAST A DISTANCE OF 400.00 FEET; THENCE ALONG THE ARC OF SAID CURVE PASSING THROUGH A CENTRAL ANGLE OF 48*13'39 A DISTANCE OF 336.69 FEET TO A POINT OF TANGENCY; THENCE NORTH 90*00'00 EAST A DISTANCE OF 210.56 FEET TO THE EAST LINE OF AFORESAID NORTHEAST QUARTER; THENCE NORTH 01*57'50 EAST ALONG SAID EAST LINE A DISTANCE OF 999.83 FEET TO SAID NORTHEAST CORNER OF SAID SECTION 22 AND THE POINT OF BEGINNING. SUBJECT TO AND TOGETHER WITH EASEMENTS AS PER AUDITOR'S FILE NO. 9604120038.

Parcel #4:
22231W
LOT 4 OF SEGREGATION REQUEST RECORDED UNDER AUDITOR'S FILE NO. 9604120038; BEING THAT PORTION OF THE NORTHEAST QUARTER OF SECTION 22, TOWNSHIP 23 NORTH, RANGE 1 WEST, W.M., DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHEAST CORNER OF SAID NORTHEAST QUARTER OF SECTION 22; THENCE SOUTH 01*57'50 WEST ALONG THE EAST LINE OF SAID SUBDIVISION A DISTANCE OF 999.83 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING SOUTH 01*57'50 WEST ALONG SAID EAST LINE A DISTANCE OF 1768.92 FEET TO THE SOUTHEAST CORNER OF SAID NORTHEAST QUARTER; THENCE NORTH 89*22'56 WEST ALONG THE SOUTH LINE OF SAID SUBDIVISION A DISTANCE OF 975.91 FEET TO THE NORTHEASTERLY MARGIN OF LAKE

FLORA ROAD; THENCE NORTH 45*35'11 WEST ALONG SAID MARGIN A DISTANCE OF 30.00 FEET; THENCE LEAVING SAID MARGIN NORTH 44*24'49 EAST A DISTANCE OF 476.60 FEET TO THE POINT OF CURVATURE OF A CURVE, THE RADIAL CENTER OF WHICH BEARS NORTH 45*35'11 WEST A DISTANCE OF 300.00 FEET; THENCE ALONG THE ARC OF SAID CURVE PASSING THROUGH A CENTRAL ANGLE OF 92*38'28 A DISTANCE OF 485.07 FEET TO A POINT OF TANGENCY; THENCE NORTH 48*13'39 WEST A DISTANCE OF 380.59 FEET; THENCE NORTH 41*46'21 EAST A DISTANCE OF 771.21 FEET TO THE POINT OF CURVATURE OF A CURVE THE RADIAL CENTER OF WHICH BEARS SOUTH 48*13'39 EAST A DISTANCE OF 400.00 FEET; THENCE ALONG THE ARC OF SAID CURVE PASSING THROUGH A CENTRAL ANGLE OF 48*13'39 A DISTANCE OF 336.69 FEET TO A POINT OF TANGENCY; THENCE NORTH 90*00'00 EAST A DISTANCE OF 210.56 FEET TO THE AFORESAID EAST LINE OF THE NORTHEAST QUARTER OF SECTION 22, AND THE POINT OF BEGINNING. SUBJECT TO AND TOGETHER WITH EASEMENTS AS PER AUDITOR'S FILE NO. 9604120038.

Parcel #5:
22231W
LOT 5 OF SEGREGATION REQUEST RECORDED UNDER AUDITOR'S FILE NO. 9604120038; BEING THAT PORTION OF THE NORTHEAST QUARTER OF SECTION 22, TOWNSHIP 23 NORTH, RANGE 1 WEST, W.M., DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NORTHEAST QUARTER OF SECTION 22; THENCE SOUTH 01*57'50 WEST ALONG THE EAST LINE OF SAID SUBDIVISION A DISTANCE OF 2768.75 FEET TO THE SOUTHEAST CORNER THEREOF; THENCE NORTH 89*22'56 WEST ALONG THE SOUTH LINE OF SAID SUBDIVISION 975.91 FEET TO THE NORTHEASTERLY MARGIN OF LAKE FLORA ROAD; THENCE NORTH 45*35'11 WEST ALONG SAID MARGIN A DISTANCE OF 30.00 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING NORTH 45*35'11 WEST ALONG SAID MARGIN A DISTANCE OF 1294.45 FEET; THENCE LEAVING SAID MARGIN NORTH 41*46'21 EAST A DISTANCE OF 730.27 FEET; THENCE SOUTH 48*13'39 EAST A DISTANCE OF 1015.35 FEET TO THE POINT OF CURVATURE OF A CURVE THE RADIAL CENTER OF WHICH BEARS SOUTH 41*46'21 WEST A DISTANCE OF 300.00 FEET; THENCE ALONG THE ARC OF SAID CURVE PASSING THROUGH A CENTRAL ANGLE OF 92*38'28 A DISTANCE OF 485.07 FEET TO A POINT OF TANGENCY; THENCE SOUTH 44*24'49 WEST A DISTANCE OF 476.60 FEET TO THE AFORESAID NORTHEASTERLY MARGIN OF LAKE FLORA ROAD AND THE POINT OF BEGINNING. SUBJECT TO AND TOGETHER WITH EASEMENTS AS PER AUDITOR'S FILE NO. 9604120038

Parcel #6:
22231W
LOT 6 OF SEGREGATION REQUEST RECORDED UNDER AUDITOR'S FILE NO. 9604120038; BEING THAT PORTION OF THE NORTHEAST QUARTER OF SECTION 22, TOWNSHIP 23 NORTH, RANGE 1 WEST, W.M., DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NORTHEAST QUARTER OF SAID NORTHEAST QUARTER OF SECTION 22; THENCE SOUTH 01*57'50 WEST ALONG THE EAST LINE OF SAID SUBDIVISION A DISTANCE OF 2768.75 FEET TO THE SOUTHEAST CORNER THEREOF; THENCE NORTH 89*22'56 WEST ALONG THE SOUTH LINE OF SAID SUBDIVISION 975.91 FEET TO THE NORTHEASTERLY MARGIN OF LAKE FLORA ROAD; THENCE NORTH 45*35'11 WEST ALONG SAID MARGIN A DISTANCE OF 1294.45 FEET TO THE POINT OF

BEGINNING; THENCE CONTINUING NORTH 45*35'11 WEST ALONG SAID MARGIN A DISTANCE OF 966.90 FEET TO THE POINT OF CURVATURE OF A CURVE THE RADIAL CENTER OF WHICH BEARS NORTH 44*24'49 EAST A DISTANCE OF 2834.79 FEET; THENCE ALONG THE ARC OF SAID CURVE PASSING THROUGH A CENTRAL ANGLE OF 10*01'00 A DISTANCE OF 495.59 FEET TO A POINT OF TANGENCY; THENCE LEAVING SAID MARGIN NORTH 49*23'44 EAST ALONG A RADIAL LINE OF SAID CURVE A DISTANCE OF 362.83 FEET TO THE POINT OF CURVATURE OF A CURVE THE RADIAL CENTER OF WHICH BEARS SOUTH 40*36'16 EAST A DISTANCE OF 300.00 FEET; THENCE ALONG THE ARC OF SAID CURVE PASSING THROUGH A CENTRAL ANGLE OF 82*22'37 A DISTANCE OF 431.33 FEET TO A POINT OF TANGENCY; THENCE SOUTH 48*13'39 EAST A DISTANCE OF 1110.95 FEET; THENCE SOUTH 41*46'21 WEST A DISTANCE OF 730.27 FEET TO THE AFORESAID NORTHEASTERLY MARGIN OF LAKE FLORA ROAD AND THE POINT OF BEGINNING. SUBJECT TO AND TOGETHER WITH EASEMENTS AS PER AUDITOR'S FILE NO. 9604120038.

3 SITE OVERVIEW

The subject property consists of a cluster of six tax parcels covering a total of 148.78-acres. The subject property is undeveloped forest land (Figure 2).

3.1 ADJACENT PROPERTIES

To the north, the subject property borders a large tract of vacant forested land. The triangularly-shaped subject property is bounded on the southwest by SW Lake Flora Road, forested land, and several scattered residences. The subject property is bounded on the east by a Christmas tree farm. State Highway 3 is located at the northwestern "tip" of the subject property.

4 PHYSICAL SETTING

The subject property is situated on slight southwesterly sloping land at an elevation of 400 feet above mean sea level (Figure 1).

4.1 FLOOD PLAIN

The subject property is located outside of the US Federal Emergency Management Agency 100-year and 500-year flood zones.

4.2 SENSITIVE RECEPTORS

There are no documented sensitive receptors within a 1,000-foot radius of the subject property.

4.3 GEOLOGY

The dominant geological feature of the landscape in this portion of the Kitsap County is Vashon till (Pleistocene). The Vashon till is made up of predominantly fine-grained deposits consisting of unsorted and unstratified glacial sediments from clay to boulder in size that vary in compaction and composition throughout the Puget Sound. The Vashon till is made up of both subglacial and ablation components. The subglacial consists of unsorted gravel in a matrix of sandy silt and clay, commonly called hardpan. The ablation is till, brown sandy and gravelly soil accompanied by a few boulders (Jones 1998).

4.4 SOILS

The soil type underlying the subject property is very gravelly sandy loamy regionally mapped as Alderwood. This soil type has Class C, slow infiltration characteristics typical of soils that consist predominately of moderately well drained gravelly loam soils.

4.5 SURFACE WATER AND WETLANDS

There are no documented wetlands within subject property. No surface water bodies exist within the subject property or on the adjacent properties.

4.6 WATER WELLS

There are 11 documented water wells within a 1/2- to 1-mile radius of the subject property.

4.7 GROUNDWATER

Hydrological conditions including rainfall amounts, nearby streams, or other surface bodies of water can provide pathways for the spread of contamination. Fate transport routes are those pathways which contamination would utilize to flow into a property. These routes are generally topographically controlled, but subsurface structure (faults); lithology (gravel, sands, or clays and their porosity and permeability) can also effect the migration of contamination. Often underground cables or storm sewer pipes act as conduits for contamination (depending on their proximity to the spill event).

Principal groundwater aquifers in the subject property area generally occur in perched recessional outwash deposits overlying glacial till and within advanced outwash sands and gravels underlying the till. Groundwater is reported in the vicinity of the subject property at a depth of approximately 11 feet below ground surface. Based on surface topography, the likely direction of shallow groundwater flow beneath the subject property is interpreted to be south and northwest, following the site and surrounding area topographic slope.

4.8 POTABLE WATER SERVICES

Potable water service for the area of the subject property is supplied by individual water supply wells.

4.9 SEWER

Sewer services for the vicinity of the subject property typically consist of septic systems.

4.10 DITCH FEATURES

Stormwater ditches bound the subject property along its frontage with SW Lake Flora Road. No evidence of staining or dumping was noted in the roadside ditches bounding the subject property.

4.11 STORMWATER SEWERS

No stormwater catch basins were observed on the subject property.

4.12 ELECTRICAL SUPPLY/TRANSFORMERS

Kitsap County PUD provides electrical services to the subject property. A single pole-mounted main service transformer was observed on the western end of the subject property. The transformer appeared to be abandoned. This transformer did not contain labeling indicating PCB content. No evidence of leaks was noted on or around the transformer.

5 RESULTS OF THE SITE INVESTIGATION

5.1 SITE INSPECTION DATE

Personnel from EHSI inspected the subject property on June 7, 2011. No weather limitations occurred during the inspection. Most of the subject property was covered with trees and dense brush which restricted access to the periphery of the property. Assessment for the presence of ACM, lead-based paint, and PCBs within light ballasts is beyond the scope of this Phase I ESA.

5.2 INTERIOR AREAS

There are no interior areas of the undeveloped subject property.

5.3 CHEMICAL STORAGE

No chemical storage was observed for the subject property.

5.4 RADON

The western region of the State of Washington is generally considered to have a relatively low potential for significant radon emissions. The US Environmental Protection Agency National Radon Database (EPA Radon Database) is a compilation of the EPA/State Residential Radon Survey and the National Radon Survey. The listed EPA Radon Database average indoor measurement readings for radon in this portion of Kitsap County, Washington (Zip Code 98367) ranged from 0.143 to 0.647 pCi/L. There were 21 recorded measurements within the zip code and the readings averaged 0.647 pCi/L. Based on regional geologic conditions and published regional radon testing results, EHSI believes that there is a very low probability that radon emissions present a significant environmental issue at the subject property.

5.5 ABOVE GROUND STORAGE TANKS (ASTs)

The EHSI Inspector observed no current ASTs within the subject property.

5.6 UNDERGROUND STORAGE TANKS (USTs)

No currently known (documented or observed) fuel USTs appear to exist within the subject property. The EHSI field inspector did not observe any UST vents, fill ports, or any other apparatus commonly associated with USTs that would signify their current existence within the subject property.

We were advised by a representative of the Kitsap County Fire Marshal's office, Ms. Jackie Blackwood, that they do not have records of UST installations or removals for the subject property.

5.7 GENERAL CONDITIONS OF EXTERIOR AREAS

The EHSI site inspector documented the accessible exterior areas of the subject property to be in good condition. The presence of trees and dense brush preclude access to a significant portion of the subject property. There was no observed chemical surface staining or evidence of chemical spill within the inspected exterior areas of the subject property (Appendix A, photographs 1 and 3).

5.8 CONTROLLED WASTE STORAGE AREA

No solid waste storage areas were observed on the subject property.

5.9 DISCOLORED SOILS OR STRESSED VEGETATION

During inspection, the EHSI inspector found no discolored soils or stressed vegetation within the subject property.

6 PHASE I ESA HISTORICAL RESEARCH

A property reconnaissance and review of available historical resources including aerial photographs, Sanborn fire insurance maps, and Metsker and Kroll atlas collections were evaluated to assess for current and past land uses that may present potential environmental liabilities of the subject property.

6.1 AERIAL PHOTOGRAPHS

EHSI reviewed aerial photographs of the subject property and surrounding properties for the years 1951, 1968, 1980, 1991, and 2006.

The 1951 aerial photographs show the subject and surrounding properties as undeveloped forest land. State Highway 3 is visible to the west and Lake Flora Road appears as a narrow gravel drive with a curve into the central portion of the subject property.

An area of cleared land is visible on the very western portion of the subject property in the 1968 photo.

In 1980, some form of additional land clearing is evident on the western end of the subject property. Clearcut logging is visible on the eastern portion of the subject property.

By 1990, Lake Flora Road appears in its current configuration. No changes to subject property land use are evident in the 1990 and 2006 aerial photographs. Surrounding land use appears much the same as current-day conditions.

No evidence of landfills or large chemical storage facilities, such as bulk terminals, was found during review of the aerial photographs covering the subject property and its surrounding area. Copies of the aerial photographs are contained in Appendix B.

6.2 SANBORN FIRE INSURANCE MAPS

No Sanborn fire insurance maps exist for the subject property (unmapped) and its environs (Appendix B).

6.3 KROLL ATLASES

The Historical Kroll Atlas was reviewed for 1927. This atlas shows the subject property ownership as Curran Timber Company.

6.4 POLK CITY DIRECTORIES

Polk City Directories were not available for the vicinity of the subject property.

6.5 KITSAP CUONTY PERMIT REVIEW

EHSI reviewed the Kitsap County on-line building department for possible permits (e.g., environmental remediation, UST removal, hazardous material storage, Haz-Mat abatement, etc.) issued for the subject property. No relevant environmental permits were on file for the subject property.

6.6 HISTORICAL ASSESSOR TAX RECORDS

Historical tax assessor records were not publically available.

6.7 FIRE DEPARTMENT

The Kitsap Fire Marshal's office provides fire and chemical spill (Haz-Mat) protection services to the subject property. EHSI spoke with Ms. Jackie Blackwood of the Kitsap Fire Marshal's office on June 15, 2011. Ms. Blackwood related that there are no hazardous materials incident reports or UST permits on file for the subject property.

6.8 INTERVIEWS

As part of the Phase I ESA process, the EHSI Inspector conducted the following interviews:

Mr. David Overton, the current subject property owner. According to Mr. Overton:

- He is unaware of any ASTs or USTs on the subject property;
- No filed or recorded environmental cleanup liens exist for the subject property;
- No filed and/or recorded activity or land use limitations are in place for the subject property;
- Approximately five years ago someone dumped approximately five gallons of used oil on the Lake Flora Road right-of-way which flowed onto the subject property. In response to a request from the Kitsap County Health Department, Mr. Overton had the soil at the spill area overexcavated and sent to a licensed facility for disposal.
- Mr. Overton's family has owned the property since 1920 and it has been used for forest production since that time. During the 1960s and 1970s a small Christmas tree sales operation was located on the western end of the subject property.

6.9 INTERVIEW BONAFIDE PROSPECTIVE PURCHASER

At the present time, the subject property is not under a purchase agreement and there is no bonafide prospective purchaser.

6.10 TITLE DOCUMENTATION

EHSI was not provided a chain-of-title document for the subject property.

7 DATA GAPS

The absence of chain-of-title documentation presents a data gap for the subject property. This data gap is not expected to effect the conclusions of the Phase I report.

8 ENVIRONMENTAL ASSESSMENT RECORDS REVIEW

EHSI contracted EDR to carry out a review of various state and federal regulatory databases and records for the subject property. In addition, EDR searched for sites located within specific search distances listed in ASTM Standard E1527-05, Standard Practice for Environmental Assessment and the USEPA AAI Standard. The findings of the EDR Database Review are presented in the subsequent sections. A description of the databases searched and a copy of the EDR database search document are provided in Appendix B.

8.1 DATABASE SEARCH RESULTS

Table 1 provides a summary of the key Federal and State of Washington databases searched by EDR:

TABLE 1: REGULATORY DATABASE SOURCE LISTS

AGENCY	LIST ACRONYMS/ID[A]	DESCRIPTION	SEARCH RADIUS	NUMBER OF SITES LOCATED
USEPA	NPL	National Priority List	1 mile	0
USEPA	CORRACTS	RCRA Corrective Actions	1 mile	0
Ecology	HSL/SHWS	Hazardous Sites List/State Hazardous Waste Sites	1 mile	0
USEPA	CERCLIS/NFRAP	Sites Currently Under Review	½ mile	0
Ecology	CSCSL/CSCSL-NFA	Confirmed and Suspected Contaminated Sites List	½ mile	0
USEPA	TSD	Permitted RCRA Treatment, Storage, and Disposal Facilities	1 mile	0
Ecology	LUST	Leaking Underground Storage Tank Sites	½ mile	0
Ecology	ICR/VCP	Independent Cleanup Report/Voluntary Cleanup Program	½ mile	0
Ecology	SWLF	Permitted Solid Waste Landfills, Incinerators, or Transfer Stations	½ mile	0
Ecology	UST	Regulated Underground Storage Tanks	¼ mile	0
USEPA	RCRA-LQG	RCRA Registered Large Quantity Generators of Hazardous Waste	¼ mile	0
USEPA	RCRA-SQG	RCRA Registered Small Quantity Generators of Hazardous Waste	¼ mile	0
USEPA	RCRA-CESQG	RCRA Registered Conditionally Exempt Small Quantity Generators of Hazardous Waste	¼ mile	0
USEPA	ERNS	Emergency Response Notification Systems	Target Property	0
Ecology	SPILLS	Reported Spills	Target Property	0

RCRA = Resource Conservation and Recovery Act.
NFA = No Further Action.
Ecology = Washington State Department of Ecology.
[A]See EDR Report in Appendix B for definitions of database acronyms.

8.2 SUBJECT PROPERTY

The subject property is not listed on any federal or state regulatory environmental databases.

8.3 SURROUNDING PROPERTIES

A review of the EDR database search report, including sites listed in the orphan site summary did not identify any sites with either documented releases of hazardous materials or facilities that manage hazardous materials in significant quantities within the ASTM Standard specified search radii.

9 PHASE I ESA CONCLUSIONS

A review of historical information available revealed that the subject property was vacant forest land since the 1920s. The western portion of the subject property was occupied by a small Christmas tree sales lot in the 1960s and 1970s. No environmental risks were identified for that subject property.

EHSI has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-05 of the subject property at the northeast corner of the intersection of State Highway 3 and SW Lake Flora Road, Bremerton, Washington. Any exceptions to, or deletions from, this practice are described in Section 11 of this report. This assessment has revealed no evidence of RECs in connection with the property.

The ASTM Standard for Phase I Environmental Site Assessments specifically excludes the sampling and identification of ACM, lead-based paint, and PCBs-containing lighting ballasts. Therefore, this assessment did not include testing, verification, or identification of those potential environmental hazards.

10 RECOMMENDATIONS

Based on our research in conducting this Phase I ESA, we believe that a thorough analysis of potential environmental liabilities has been conducted in accordance to the ASTM Phase I ESA Standard (E 1527-05) and USEPA AAI Rule at the subject property. Based on the results of our Phase I research, no additional action appears warranted at this time.

11 DEVIATIONS

No site-specific conditions were encountered that required deviation from the scope of services addressed in Section 2.2 of this report.

12 REFERENCES

ASTM International. 2005. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. American Society for Testing and Materials. ASTM E 1527-05, 35p.

Ecology. 2004. Dangerous Waste Regulations – Chapter 173-303 WAC. Washington State Department of Ecology publication number 92-91.

Ecology. 2007. Model Toxics Control Act (MTCA) Cleanup Regulation—Chapter 173-340 WAC. Washington State Department of Ecology, Toxics Cleanup Program, Publication Number 94-06. Updated October 12, 2007.

Ecology. 2011. Washington State Department of Ecology Well Log Database. Visited Ecology website on May 31, 2011; http://apps.ecy.wa.gov/welllog/mapsearch/.

EDR. 2011a. EDR Radius Map™ Report with GeoCheck® for the subject property, 8091 SR3, Port Orchard, Washington 98367. Environmental Data Resources, Inc., Inquiry No. 3074135.2s, May 19, 2011 (see Appendix B).

EDR. 2011b. EDR Aerial Photo Decade Package for the subject property, 8091 SR3, Port Orchard, Washington 98367. Environmental Data Resources, Inc., Inquiry No. 3074135.2s, May 19, 2011.

EDR. 2011c. Certified Sanborn® Map Report for the subject property, 8091 SR3, Port Orchard, Washington 98367. Environmental Data Resources, Inc., Inquiry No. 3074135.2s, May 19, 2011.

Overton, David, telephone interview on June 20, 2011.

Blackwood, Jackie, telephone interview on June 15, 2011.

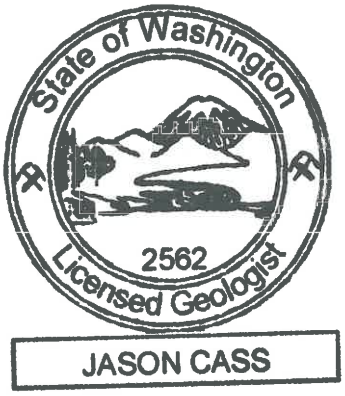
Google. 2011. 2011 aerial photograph covering the subject property and surrounding area. Visited Google Maps website on June 10, 2011.

Jones, M. A.; 1998, "Surficial Hydrogeologic Units of the Puget Sound Aquifer System, Washington"; United States Geological Survey Professional Paper 1424-C;

USGS. 1992. Belfair, Washington 7.5-minute topographic quadrangle map. U.S. Geological Survey, Denver, Colorado

13 SIGNATURE

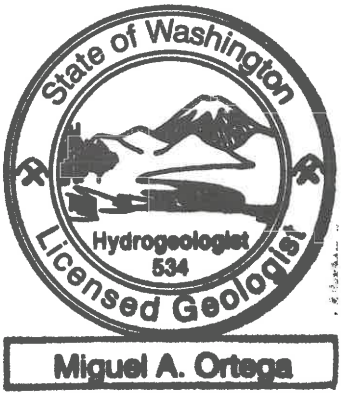
This Phase I ESA Final Report was prepared by the undersigned. I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of this part [40 CFR Part 312]. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.



Jason Cass 6/28/11

Jason Cass
Washington Licensed Geologist

Date



25 June 2011

Miguel Ortega
Washington Licensed Geologist

Date

14 LIMITATIONS

The conclusions presented in report are professional opinions based upon our visual observations and available public records. This report is intended exclusively for the purpose outlined herein, at the site location indicated. This report is for the sole use of our client, Integrus Architecture. Opinions and conclusions presented herein apply to site conditions existing at the time of execution of our Phase I Environmental Site Assessment and do not necessarily apply to future changes or other prior conditions at the site of which EHSI is not aware and has not had the opportunity to evaluate. The scope of services performed in execution of this Phase I Environmental Site Assessment may not be appropriate to satisfy the needs of other users, and any use or re-use of the document, its findings, conclusions, or recommendations presented are at the sole risk of the said user.

EHSI's objective is to perform our work with care, exercising the customary thoroughness and competence of environmental consulting professionals in the relevant disciplines. Furthermore, we carried out our services in accordance with the standard for professional services by a consulting firm at the time those services were rendered. It is important to recognize that even the most comprehensive scope of services may fail to detect environmental liability on a particular site. Therefore, EHSI cannot act as insurers and cannot "certify or underwrite" that a site is totally free of environmental liability. In addition, no expressed or implied representation or warranty is included or intended in our report except that our work was performed within the limits prescribed by our client, and with the customary thoroughness and competence of our profession.

FIGURES

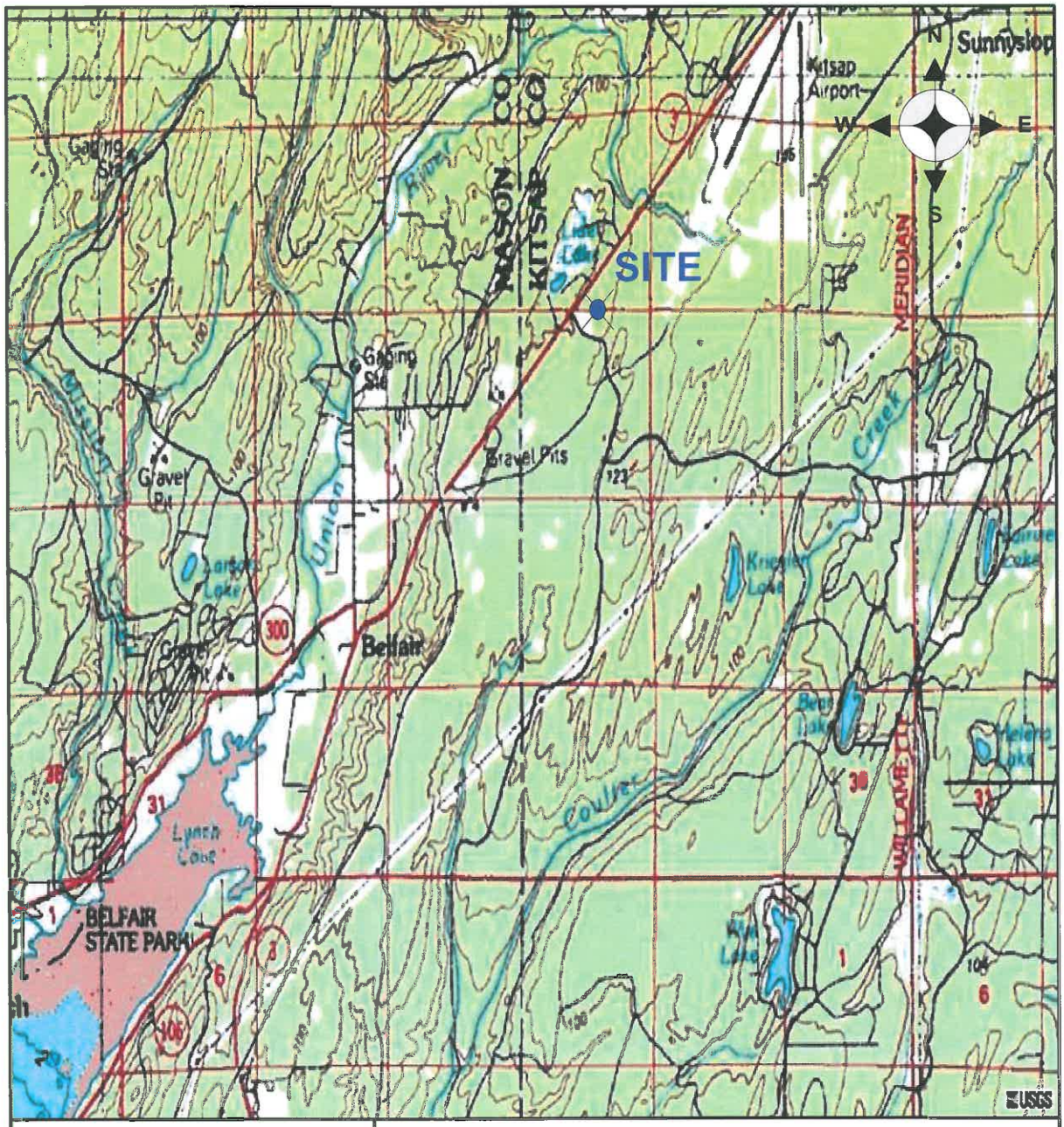
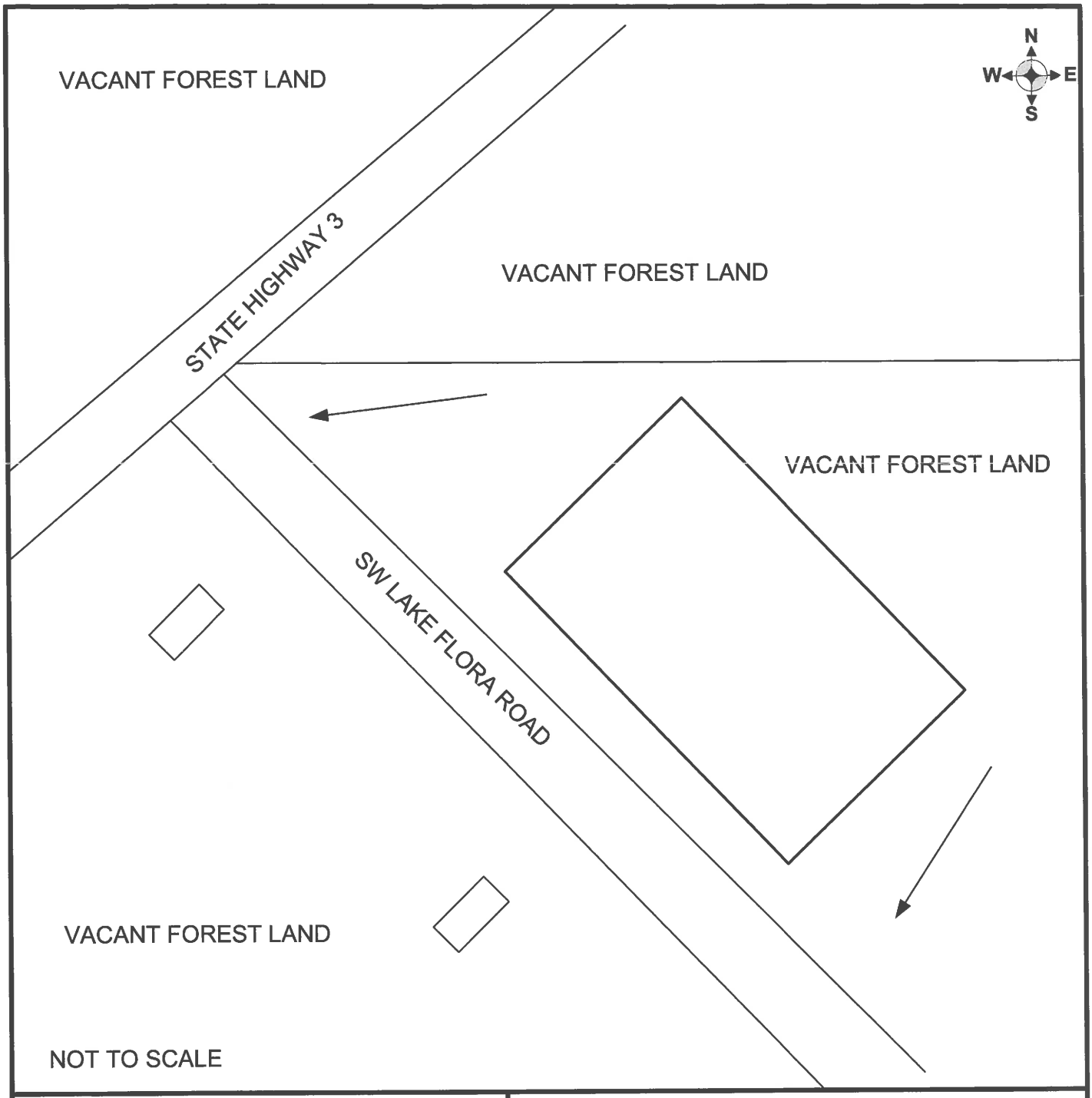


FIGURE 1
BREMERTON SITE
PHASE I ENVIRONMENTAL SITE ASSESSMENT
STATE HIGHWAY 3 AND LAKE FLORA ROAD
BREMERTON, WASHINGTON 98367

SITE LOCATION MAP

Reference: US Geological Survey
Belfair, Washington
7.5 Minute Quadrangle
Photo revised 1992

EHS International, Inc.	June 2011



EXPLANATION

APPROXIMATE LIMITS OF PROPOSED FACILITY

INFERRED GW FLOW DIRECTION

FIGURE 2

BREMERTON SITE
PHASE I ENVIRONMENTAL SITE ASSESSMENT
STATE HIGHWAY 3 & LAKE FLORA ROAD
BREMERTON, WASHINGTON 98367

SITE PLOT PLAN

EHS International, Inc.	June 2011

APPENDIX A: SITE PHOTOGRAPHS

Photograph 1: View of western corner of subject property.

Photograph 2: View looking north of former roadbed penetrating subject property.

Photograph 3: Typical dense brush conditions across subject property.

Photograph 4: View looking west at subject property from east-adjoining Christmas tree farm.

APPENDIX B: EDR DATABASE SEARCH DOCUMENT

Kitsap Site
8091 SR3
Port Orchard, WA 98367

Inquiry Number: 3074135.3
May 19, 2011

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

5/19/11

Site Name:
Kitsap Site
8091 SR3
Port Orchard, WA 98367

Client Name:
EHS International, Inc.
13228 NE 20th Street
Bellevue, WA 98005

EDR Inquiry # 3074135.3

Contact: Jason Cass

EDR® Environmental Data Resources Inc

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by EHS International, Inc. were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: Kitsap Site
Address: 8091 SR3
City, State, Zip: Port Orchard, WA 98367
Cross Street:
P.O. # 10200-01
Project: 10200
Certification # 00B7-4AA0-AD60

Sanborn® Library search results
Certification # 00B7-4AA0-AD60

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✓ Library of Congress
- ✓ University Publications of America
- ✓ EDR Private Collection

The Sanborn Library LLC Since 1866™

Limited Permission To Make Copies

EHS International, Inc. (the client) is permitted to make up to THREE photocopies of this Sanborn Map transmittal and each fire insurance map accompanying this report solely for the limited use of its customer. No one other than the client is authorized to make copies. Upon request made directly to an EDR Account Executive, the client may be permitted to make a limited number of additional photocopies. This permission is conditioned upon compliance by the client, its customer and their agents with EDR's copyright policy; a copy of which is available upon request.

Kitsap Site
8091 SR3
Port Orchard, WA 98367

Inquiry Number: 3074135.4
May 23, 2011

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

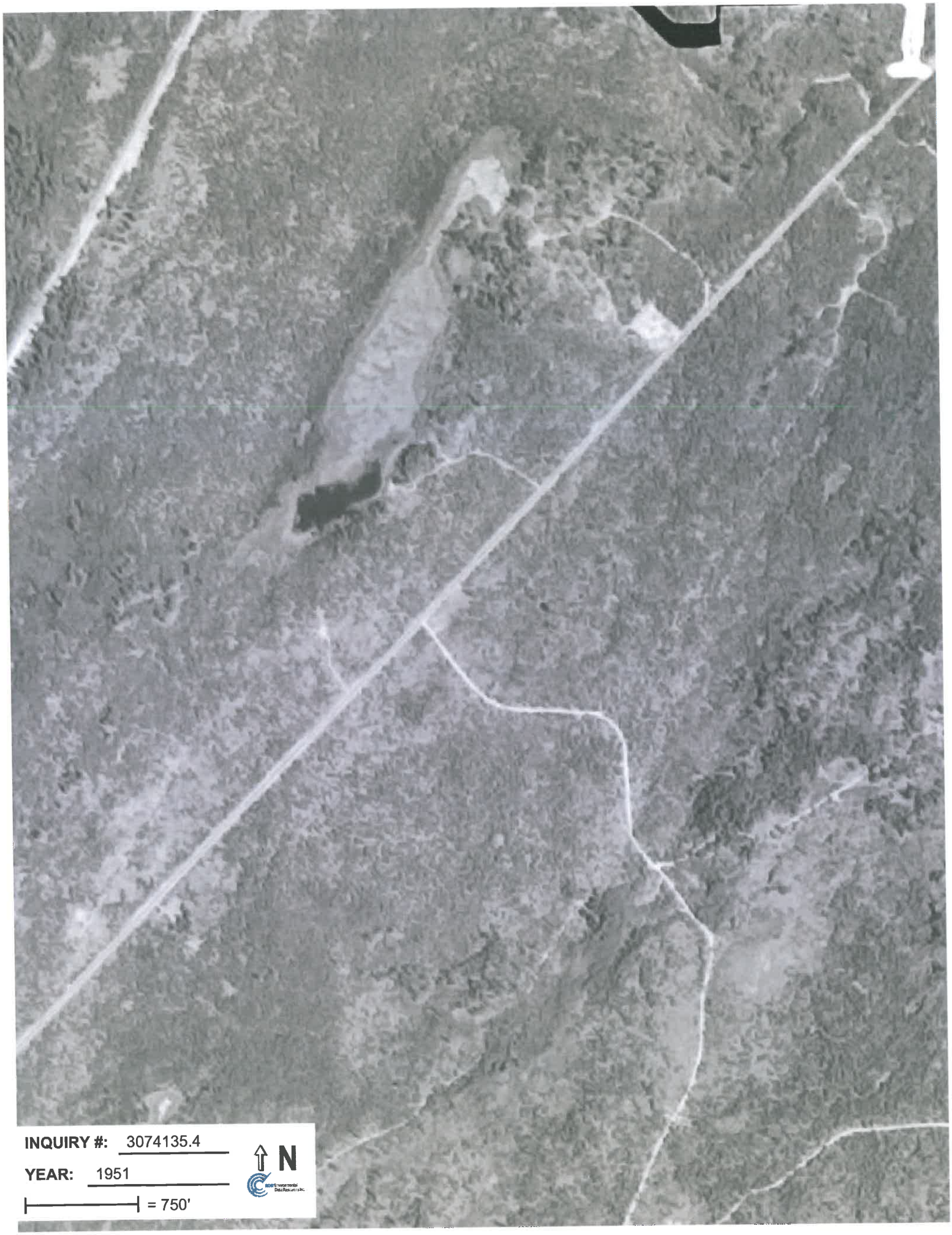
Aerial Photography May 23, 2011

Target Property:

8091 SR3

Port Orchard, WA 98367

Year	*Scale*	*Details*	*Source*
1951	Aerial Photograph. Scale: 1"=750'	Panel #: 47122-D7, Belfair, WA;/Flight Date: September 08, 1951	EDR
1968	Aerial Photograph. Scale: 1"=1000'	Panel #: 47122-D7, Belfair, WA;/Flight Date: September 04, 1968	EDR
1980	Aerial Photograph. Scale: 1"=1000'	Panel #: 47122-D7, Belfair, WA;/Flight Date: July 29, 1980	EDR
1991	Aerial Photograph. Scale: 1"=500'	Panel #: 47122-D7, Belfair, WA;/Flight Date: July 02, 1991	EDR
2006	Aerial Photograph. Scale: 1"=604'	Panel #: 47122-D7, Belfair, WA;/Flight Date: January 01, 2006	EDR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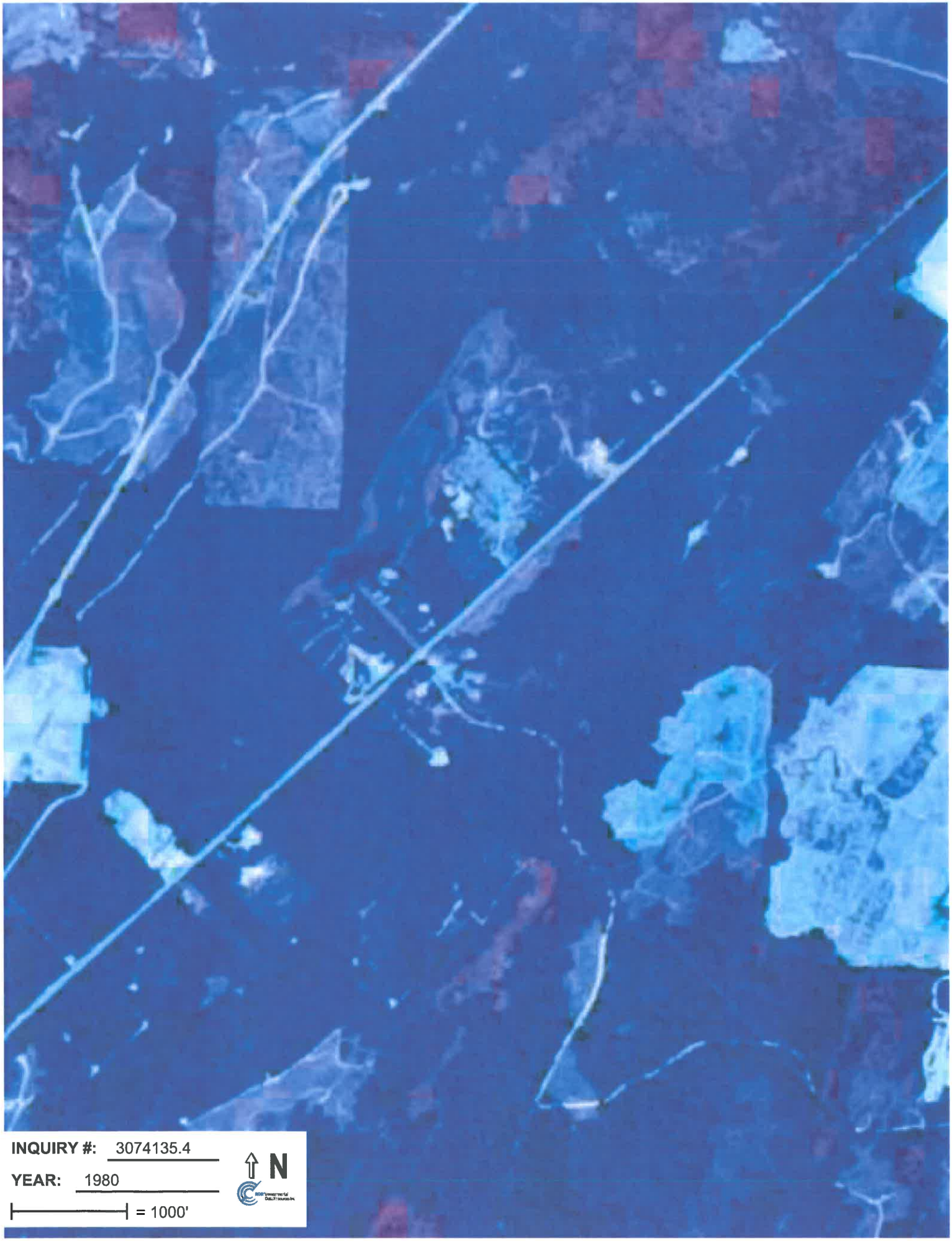
YEAR: 1951
= 750'
N


INQUIRY #: 3074135.4
YEAR: 1968
= 1000'
N


INQUIRY #: 3074135.4
YEAR: 1980
= 1000'
N


INQUIRY #: 3074135.4
YEAR: 1991
= 500'
N


INQUIRY #: 3074135.4
YEAR: 2006
= 604'
N

Kitsap Site
8091 SR3
Port Orchard, WA 98367

Inquiry Number: 3074135.2s
May 19, 2011

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

8091 SR3
PORT ORCHARD, WA 98367

COORDINATES

Latitude (North):	47.476800 - 47° 28' 36.5"
Longitude (West):	122.790500 - 122° 47' 25.8"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	515785.6
UTM Y (Meters):	5257954.0
Elevation:	339 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	47122-D7 BELFAIR, WA
Most Recent Revision:	1994

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	2005, 2006
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List

EXECUTIVE SUMMARY

Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROL..... Sites with Institutional Controls

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent NPL

HSL..... Hazardous Sites List

State- and tribal - equivalent CERCLIS

CSCSL..... Confirmed and Suspected Contaminated Sites List

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Solid Waste Facility Database

State and tribal leaking storage tank lists

LUST..... Leaking Underground Storage Tanks Site List
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

EXECUTIVE SUMMARY

State and tribal registered storage tank lists

UST ..... Underground Storage Tank Database
AST ..... Aboveground Storage Tank Locations
INDIAN UST ..... Underground Storage Tanks on Indian Land
FEMA UST ..... Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

INST CONTROL ..... Institutional Control Site List

State and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing
VCP ..... Voluntary Cleanup Program Sites
ICR ..... Independent Cleanup Reports

State and tribal Brownfields sites

BROWNFIELDS ..... Brownfields Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
ODI ..... Open Dump Inventory
SWTIRE ..... Solid Waste Tire Facilities
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL ..... Clandestine Drug Labs
ALLSITES ..... Facility/Site Identification System Listing
CSCSL NFA ..... Confirmed & Contaminated Sites - No Further Action
CDL ..... Clandestine Drug Lab Contaminated Site List
HIST CDL ..... List of Sites Contaminated by Clandestine Drug Labs
US HIST CDL ..... National Clandestine Laboratory Register

Local Land Records

LIENS 2 ..... CERCLA Lien Information
LUCIS ..... Land Use Control Information System

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System
SPILLS ..... Reported Spills

Other Ascertainable Records

RCRA-NonGen ..... RCRA - Non Generators

DOT OPS	Incident and Accident Data
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
UIC	Underground Injection Wells Listing
MANIFEST	Hazardous Waste Manifest Data
DRYCLEANERS	Drycleaner List
NPDES	Water Quality Permit System Data
AIRS	Washington Emissions Data System
Inactive Drycleaners	Inactive Drycleaners
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
FINANCIAL ASSURANCE	Financial Assurance Information Listing
COAL ASH	Coal Ash Disposal Site Listing
COAL ASH DOE	Sleam-Electric Plan Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants	EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were not identified.

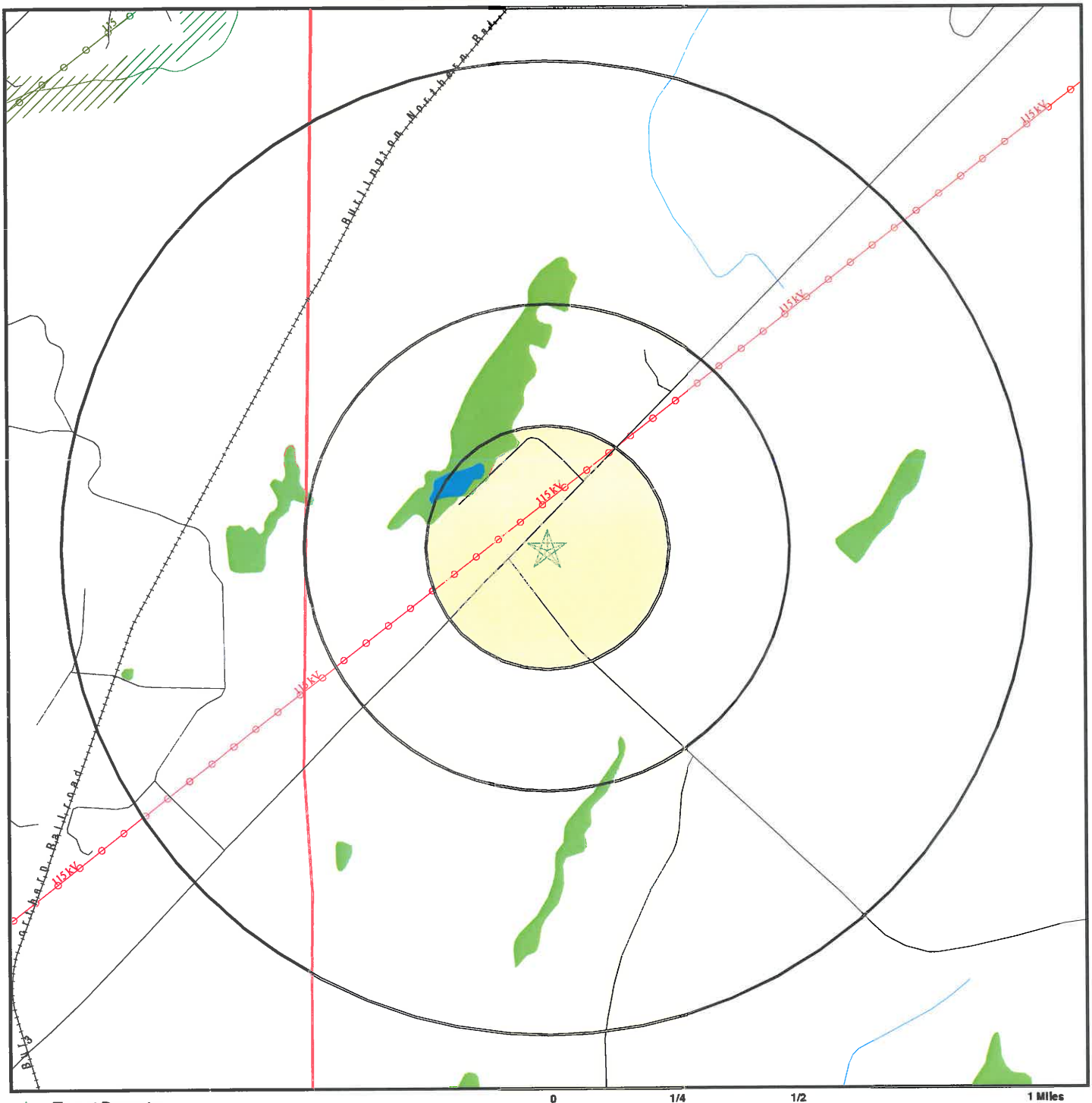
Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 35 records.

Site Name	Database(s)
BELFAIR WTER SIT PRV STATION & TAN	ALLSITES
KRUEGER ENTERPRISES INC BELFAIR	ALLSITES
PACIFIC NW SALMON CENTER	CSCSL, ALLSITES, VCP, BROWNFIELDS
BOBS GENERAL STORE	FINDS, ALLSITES
US WEST INC BELFAIR	FINDS, ALLSITES, UST
RW HENNINGSEN	FINDS, ALLSITES, UST
ACE PAVING CO INC BELFAIR FLUERY P	ALLSITES
ASSOCIATED SAND & GRAVEL BELFAIR	FINDS, ALLSITES
BLUE CASCADE CHILDRESS DEMOLITION	FINDS, ALLSITES, CSCSL NFA
ALTERNATIVE AUTO BODY REPAIR	FINDS, ALLSITES
GIG HARBOR INDUSTRIAL SITE	ALLSITES, CSCSL NFA, VCP
TALMO INC PORT ORCHARD	CSCSL, ALLSITES, UST
MORRIS RACE ENGINES	ALLSITES
PAIJE PROPERTIES INDUSTRIAL BLDGS	ALLSITES
DEWATTO BAY RECYCLING (DBR) - BELF	SWF/LF
ASSOCIATED STEEL RECYCLING	SWF/LF
KITSAP COUNTY	SPILLS
KITSAP COUNTY PUBLIC WORKS	SPILLS
SUSPECT KITSAP FOOT FERRY??	SPILLS
KITSAP COUNTY	SPILLS
KITSAP COUNTY SCHOOL DISTRICT	SPILLS
SOUTH KITSAP SCHOOL DISTRICT TRANS	SPILLS
SOUTH KITSAP SCHOOL DISTRICT TRANS	SPILLS
KITSAP COUNTY PUBLIC WORKS	SPILLS
KITSAP SCHOOL DISTRICT	SPILLS
SANDYS DELI	LUST
KRUEGER ENTERPRISES INC BELFAIR	RCRA-CESQG, FINDS
KITSAP NAVAL BASE	ERNS
KITSAP NAVAL BASE	ERNS
NAVAL BASE KITSAP	ERNS
NAVAL BASE KITSAP	ERNS
GIG HARBOR INDUSTRIAL SITE	FINDS
CHEVRON	ICR
JACKPOT #363	ICR
KITSAP RECLAMATION & MATERIALS, IN	MINES

OVERVIEW MAP - 3074135.2s

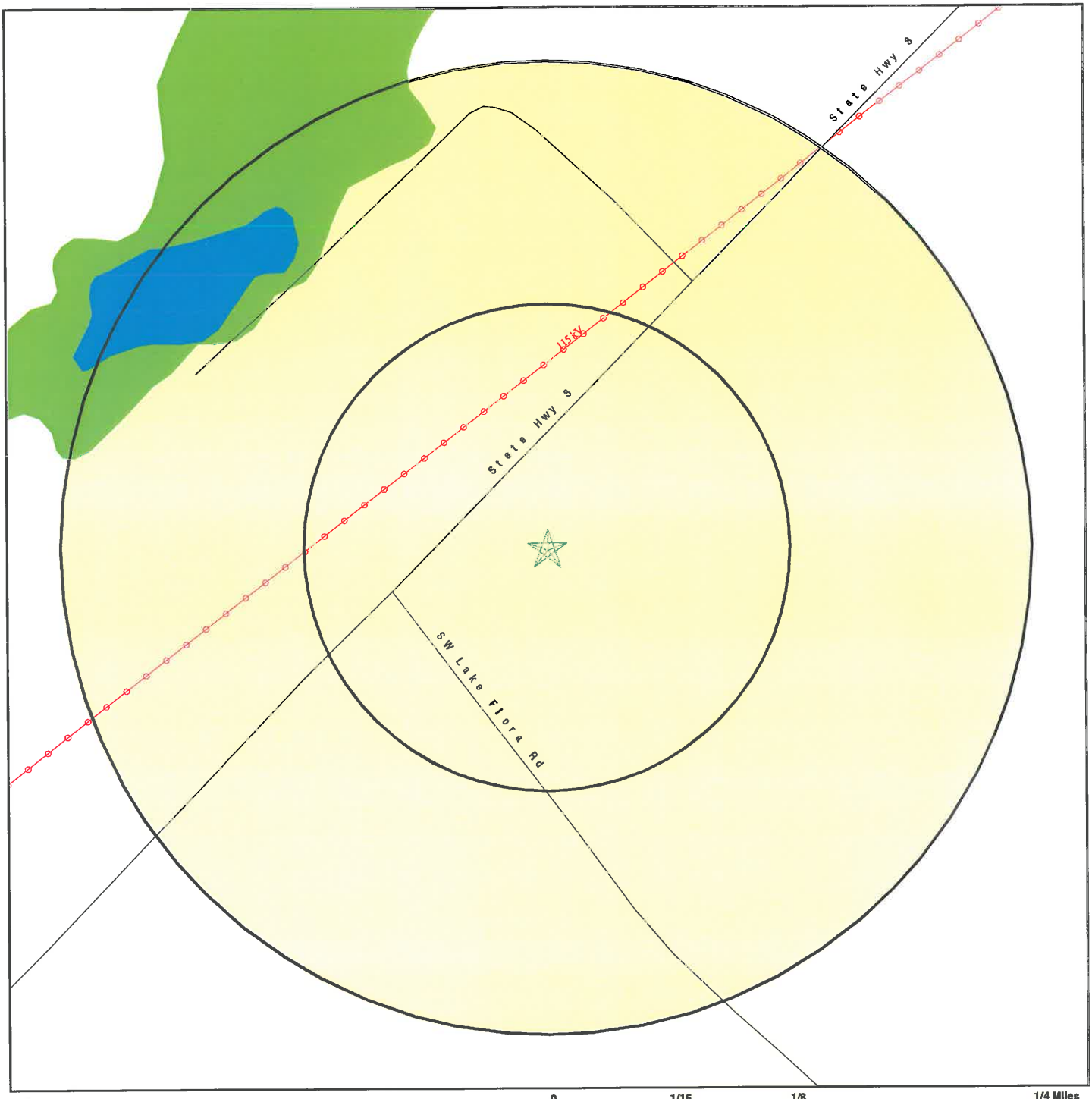


- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Kitsap Site	CLIENT: EHS International, Inc.
ADDRESS: 8091 SR3	CONTACT: Jason Cass
Port Orchard WA 98367	INQUIRY #: 3074135.2s
LAT/LONG: 47.4768 / 122.7905	DATE: May 19, 2011 6:58 pm

DETAIL MAP - 3074135.2s



0 1/16 1/8 1/4 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Kitsap Site ADDRESS: 8091 SR3 Port Orchard WA 98367 LAT/LONG: 47.4768 / 122.7905	CLIENT: EHS International, Inc. CONTACT: Jason Cass INQUIRY #: 3074135.2s DATE: May 19, 2011 6:59 pm

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL		1.000	0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS		0.500	0	0	0	NR	NR	0
FEDERAL FACILITY		1.000	0	0	0	0	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP		0.500	0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS		1.000	0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF		0.500	0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG		0.250	0	0	NR	NR	NR	0
RCRA-SQG		0.250	0	0	NR	NR	NR	0
RCRA-CESQG		0.250	0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
Federal ERNS list								
ERNS		TP	NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
HSL		1.000	0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
CSCSL		1.000	0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF		0.500	0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST		0.500	0	0	0	NR	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
State and tribal registered storage tank lists								
UST		0.250	0	0	NR	NR	NR	0
AST		0.250	0	0	NR	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
FEMA UST		0.250	0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
INST CONTROL		0.500	0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
ICR		0.500	0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS		0.500	0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
SWTIRE		0.500	0	0	0	NR	NR	0
INDIAN ODI		0.500	0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL		TP	NR	NR	NR	NR	NR	0
ALLSITES		0.500	0	0	0	NR	NR	0
CSCSL NFA		0.500	0	0	0	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
HIST CDL		TP	NR	NR	NR	NR	NR	0
US HIST CDL		TP	NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2		TP	NR	NR	NR	NR	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS		TP	NR	NR	NR	NR	NR	0
SPILLS		TP	NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA-NonGen		0.250	0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DOT OPS		TP	NR	NR	NR	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
UIC		TP	NR	NR	NR	NR	NR	0
MANIFEST		0.250	0	0	NR	NR	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
NPDES		TP	NR	NR	NR	NR	NR	0
AIRS		TP	NR	NR	NR	NR	NR	0
Inactive Drycleaners		0.250	0	0	NR	NR	NR	0
INDIAN RESERV		1.000	0	0	0	0	NR	0
SCRD DRYCLEANERS		0.500	0	0	0	NR	NR	0
FINANCIAL ASSURANCE		TP	NR	NR	NR	NR	NR	0
COAL ASH		0.500	0	0	0	NR	NR	0
COAL ASH DOE		TP	NR	NR	NR	NR	NR	0
COAL ASH EPA		0.500	0	0	0	NR	NR	0
PCB TRANSFORMER		TP	NR	NR	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
EDR Proprietary Records								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

MAP FINDINGS

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number

NO SITES FOUND

Count: 35 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BELFAIR	S110038698	BELFAIR WTER SIT PRV STATION & TAN	SR3 & RIDGETOP BLVD	98528	ALLSITES
BELFAIR	S109554962	KRUEGER ENTERPRISES INC BELFAIR	14241 HWY 106 E	98528	ALLSITES
BELFAIR	U003355215	SANDYS DELI	120TH & HWY 300 NE	98528	LUST
BELFAIR	1001490329	KRUEGER ENTERPRISES INC BELFAIR	E 14241 HWY 106	98528	RCRA-CESQG, FINDS
BELFAIR	1011279809	PACIFIC NW SALMON CENTER	22670 NE 22751 22721	98528	CSCSL, ALLSITES, VCP, BROWNFIELDS
BELFAIR	1007063709	BOBS GENERAL STORE	22551 HWY 3	98528	FINDS, ALLSITES
BELFAIR	1007074405	US WEST INC BELFAIR	23650 HWY 30	98528	FINDS, ALLSITES, UST
BELFAIR	1007063447	RW HENNINGSEN	380 HWY 300 NE	98528	FINDS, ALLSITES, UST
BELFAIR	S110038973	ACE PAVING CO INC BELFAIR FLUERY P	HWY 300 MP 2	98528	ALLSITES
BELFAIR	S110336340	DEWATTO BAY RECYCLING (DBR) - BELF	410TH & NE LOG YARD RD	98528	SWF/LF
BELFAIR	S103505521	CHEVRON	HWY	98528	ICR
BELFAIR	S110335937	ASSOCIATED STEEL RECYCLING	420 LOG YARD RD	98528	SWF/LF
BELFAIR	1007073388	ASSOCIATED SAND & GRAVEL BELFAIR	500 LOG YARD ROAD HWY S	98528	FINDS, ALLSITES
KITSAP COUNTY	2009906401	KITSAP NAVAL BASE	KITSAP NAVAL BASE		ERNS
KITSAP COUNTY	2008906401	KITSAP NAVAL BASE	KITSAP NAVAL BASE		ERNS
KITSAP COUNTY	M300001730	KITSAP RECLAMATION & MATERIALS, IN	KRMI QUARRY		MINES
KITSAP COUNTY	2009894658	NAVAL BASE KITSAP	NAVAL BASE KITSAP		ERNS
KITSAP COUNTY	2008894658	NAVAL BASE KITSAP	NAVAL BASE KITSAP		ERNS
PORT ORCHARD	1007069626	BLUE CASCADE CHILDRESS DEMOLITION	SW BERRY LAKE RD	98367	FINDS, ALLSITES, CSCSL NFA
PORT ORCHARD	S109887231	KITSAP COUNTY	BETHEL RD		SPILLS
PORT ORCHARD	S109894733	KITSAP COUNTY PUBLIC WORKS	EARHART ST		SPILLS
PORT ORCHARD	S109891842	SUSPECT KITSAP FOOT FERRY??	FOOT FRY		SPILLS
PORT ORCHARD	S109891182	KITSAP COUNTY	GLENWOOD RD SYDNEY & LEIDER		SPILLS
PORT ORCHARD	1007075900	ALTERNATIVE AUTO BODY REPAIR	3062 SW HWY 16	98367	FINDS, ALLSITES
PORT ORCHARD	S109140557	KITSAP COUNTY SCHOOL DISTRICT	7470 LAKE FLORA		SPILLS
PORT ORCHARD	S110628573	SOUTH KITSAP SCHOOL DISTRICT TRANS	2710 LINCHOLN AVE SE		SPILLS
PORT ORCHARD	S110689637	SOUTH KITSAP SCHOOL DISTRICT TRANS	2710 LINCOLN AVE		SPILLS
PORT ORCHARD	1012141575	GIG HARBOR INDUSTRIAL SITE	LOT 15 MATRIX LOOP RD	98367	FINDS
PORT ORCHARD	S109824717	GIG HARBOR INDUSTRIAL SITE	MATRIX LOOP RD	98367	ALLSITES, CSCSL NFA, VCP
PORT ORCHARD	S109888263	KITSAP COUNTY PUBLIC WORKS	S SALMONBERRY & HARRIS		SPILLS
PORT ORCHARD	S109893973	KITSAP SCHOOL DISTRICT	SEDWICK RD & LAKEVIEW PL		SPILLS
PORT ORCHARD	U003750187	TALMO INC PORT ORCHARD	SPRUCE RD	98367	CSCSL, ALLSITES, UST
PORT ORCHARD	S103503688	JACKPOT #363	3302 STATE HIGHWAY 16	98367	ICR
PORT ORCHARD	S110275921	MORRIS RACE ENGINES	3062 STATE 16 SW	98367	ALLSITES
PORT ORCHARD	S110038692	PAIJE PROPERTIES INDUSTRIAL BLDGS	5121 STATE HIGHWAY 3 SW	98367	ALLSITES

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 15

Source: EPA
Telephone: N/A
Last EDR Contact: 04/13/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 15

Source: EPA
Telephone: N/A
Last EDR Contact: 04/13/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 05/16/2011
Next Scheduled EDR Contact: 08/29/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 15

Source: EPA
Telephone: N/A
Last EDR Contact: 04/13/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/25/2011
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 04/29/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPAa??s Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/10/2010
Date Data Arrived at EDR: 01/11/2011
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/15/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 02/25/2011
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 04/29/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 05/25/2010
Date Data Arrived at EDR: 06/02/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 124

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 05/16/2011
Next Scheduled EDR Contact: 08/29/2011
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 01/05/2011
Date Data Arrived at EDR: 01/14/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 01/05/2011
Date Data Arrived at EDR: 01/14/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/07/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 73

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Annually

State- and tribal - equivalent NPL

HSL: Hazardous Sites List

The Hazardous Sites List is a subset of the CSCSL Report. It includes sites which have been assessed and ranked using the Washington Ranking Method (WARM).

Date of Government Version: 03/01/2011
Date Data Arrived at EDR: 03/18/2011
Date Made Active in Reports: 03/30/2011
Number of Days to Update: 12

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 03/15/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Semi-Annually

State- and tribal - equivalent CERCLIS

CSCSL: Confirmed and Suspected Contaminated Sites List

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 04/26/2011
Date Data Arrived at EDR: 04/27/2011
Date Made Active in Reports: 05/16/2011
Number of Days to Update: 19

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 04/27/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Solid Waste Facility Database

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 12/14/2010
Date Data Arrived at EDR: 12/15/2010
Date Made Active in Reports: 12/23/2010
Number of Days to Update: 8

Source: Department of Ecology
Telephone: 360-407-6132
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Annually

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tanks Site List

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 02/23/2011
Date Data Arrived at EDR: 02/24/2011
Date Made Active in Reports: 03/18/2011
Number of Days to Update: 22

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 02/24/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 01/31/2011
Date Data Arrived at EDR: 02/01/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 48

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 03/03/2011
Date Data Arrived at EDR: 03/18/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 45

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Semi-Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/03/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 09/01/2010
Date Data Arrived at EDR: 11/05/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 84

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/03/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 02/03/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 11/04/2009
Date Data Arrived at EDR: 05/04/2010
Date Made Active in Reports: 07/07/2010
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/04/2010
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 02/04/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: Underground Storage Tank Database
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 02/23/2011
Date Data Arrived at EDR: 02/24/2011
Date Made Active in Reports: 03/18/2011
Number of Days to Update: 22

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 02/24/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Quarterly

AST: Aboveground Storage Tank Locations
A listing of aboveground storage tank locations regulated by the Department of Ecology's Spill Prevention, Preparedness and Response Program.

Date of Government Version: 05/27/2009
Date Data Arrived at EDR: 05/28/2009
Date Made Active in Reports: 06/19/2009
Number of Days to Update: 22

Source: Department of Ecology
Telephone: 360-407-7562
Last EDR Contact: 05/09/2011
Next Scheduled EDR Contact: 08/22/2011
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 03/03/2011
Date Data Arrived at EDR: 03/18/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 45

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Semi-Annually

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 01/31/2011
Date Data Arrived at EDR: 02/01/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 48

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 02/04/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/03/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 09/01/2010
Date Data Arrived at EDR: 11/05/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 84

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/03/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 01/01/2011
Date Data Arrived at EDR: 02/23/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 68

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 02/03/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 11/01/2010
Date Data Arrived at EDR: 12/02/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 57

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 02/03/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 04/18/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

INST CONTROL: Institutional Control Site List
Sites that have institutional controls.

Date of Government Version: 02/15/2011
Date Data Arrived at EDR: 02/18/2011
Date Made Active in Reports: 02/24/2011
Number of Days to Update: 6

Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 05/18/2011
Next Scheduled EDR Contact: 08/29/2011
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/01/2010
Date Data Arrived at EDR: 01/05/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 75

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Sites
Sites that have entered either the Voluntary Cleanup Program or its predecessor Independent Remedial Action Program.

Date of Government Version: 01/25/2011
Date Data Arrived at EDR: 02/03/2011
Date Made Active in Reports: 02/18/2011
Number of Days to Update: 15

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 04/26/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

ICR: Independent Cleanup Reports
These are remedial action reports Ecology has received from either the owner or operator of the sites. These actions have been conducted without department oversight or approval and are not under an order or decree. This database is no longer updated by the Department of Ecology.

Date of Government Version: 12/01/2002
Date Data Arrived at EDR: 01/03/2003
Date Made Active in Reports: 01/22/2003
Number of Days to Update: 19

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 08/10/2009
Next Scheduled EDR Contact: 11/09/2009
Data Release Frequency: No Update Planned

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Sites Listing
A listing of brownfields sites included in the Confirmed & Suspected Sites Listing. Brownfields are abandoned, idle or underused commercial or industrial properties, where the expansion or redevelopment is hindered by real or perceived contamination. Brownfields vary in size, location, age, and past use -- they can be anything from a five-hundred acre automobile assembly plant to a small, abandoned corner gas station.

Date of Government Version: 04/26/2011
Date Data Arrived at EDR: 04/27/2011
Date Made Active in Reports: 05/12/2011
Number of Days to Update: 15

Source: Department of Ecology
Telephone: 360-725-4030
Last EDR Contact: 04/27/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 12/29/2010
Date Data Arrived at EDR: 12/30/2010
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/29/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 03/28/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWTIRE: Solid Waste Tire Facilities
This study identified sites statewide with unauthorized accumulations of scrap tires.

Date of Government Version: 11/01/2005
Date Data Arrived at EDR: 03/16/2006
Date Made Active in Reports: 04/13/2006
Number of Days to Update: 28

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 03/16/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 05/09/2011
Next Scheduled EDR Contact: 08/22/2011
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/02/2011
Date Data Arrived at EDR: 03/17/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 46

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/08/2011
Next Scheduled EDR Contact: 06/20/2011
Data Release Frequency: Quarterly

ALLSITES: Facility/Site Identification System Listing
Information on facilities and sites of interest to the Department of Ecology.

Date of Government Version: 02/08/2011
Date Data Arrived at EDR: 02/09/2011
Date Made Active in Reports: 02/24/2011
Number of Days to Update: 15

Source: Department of Ecology
Telephone: 360-407-6423
Last EDR Contact: 05/12/2011
Next Scheduled EDR Contact: 08/22/2011
Data Release Frequency: Quarterly

CSCSL NFA: Confirmed and Contaminated Sites - No Further Action
The data set contains information about sites previously on the Confirmed and Suspected Contaminated Sites list that have received a No Further Action (NFA) determination. Because it is necessary to maintain historical records of sites that have been investigated and cleaned up, sites are not deleted from the database when cleanup activities are completed. Instead, a No Further Action code is entered based upon the type of NFA determination the site received.

Date of Government Version: 04/26/2011
Date Data Arrived at EDR: 04/27/2011
Date Made Active in Reports: 05/12/2011
Number of Days to Update: 15

Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 04/27/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Semi-Annually

CDL: Clandestine Drug Lab Contaminated Site List

Illegal methamphetamine labs use hazardous chemicals that create public health hazards. Chemicals and residues can cause burns, respiratory and neurological damage, and death. Biological hazards associated with intravenous needles, feces, and blood also pose health risks.

Date of Government Version: 02/09/2009
Date Data Arrived at EDR: 03/18/2009
Date Made Active in Reports: 03/24/2009
Number of Days to Update: 6

Source: Department of Health
Telephone: 360-236-3380
Last EDR Contact: 05/17/2011
Next Scheduled EDR Contact: 08/29/2011
Data Release Frequency: Varies

HIST CDL: List of Sites Contaminated by Clandestine Drug Labs

This listing of contaminated sites by Clandestine Drug Labs includes non-remediated properties. The current CDL listing does not. This listing is no longer updated by the state agency.

Date of Government Version: 02/08/2007
Date Data Arrived at EDR: 06/26/2007
Date Made Active in Reports: 07/19/2007
Number of Days to Update: 23

Source: Department of Health
Telephone: 360-236-3381
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/22/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/05/2011
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 51

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Annually

SPILLS: Reported Spills
Spills reported to the Spill Prevention, Preparedness and Response Division.

Date of Government Version: 04/07/2011
Date Data Arrived at EDR: 04/07/2011
Date Made Active in Reports: 05/12/2011
Number of Days to Update: 35

Source: Department of Ecology
Telephone: 360-407-6950
Last EDR Contact: 03/28/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Semi-Annually

Other Ascertainable Records

RCRA-NonGen: RCRA - Non Generators
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/12/2011
Date Data Arrived at EDR: 02/11/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 05/11/2011
Next Scheduled EDR Contact: 08/22/2011
Data Release Frequency: Varies

DOD: Department of Defense Sites
This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/21/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites
The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 08/12/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 112

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 03/15/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 10/01/2010
Date Data Arrived at EDR: 10/29/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 91

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/04/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 02/25/2011
Date Data Arrived at EDR: 03/16/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 5

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/16/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/21/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 99

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 03/04/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Varies

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/08/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/09/2011
Next Scheduled EDR Contact: 06/20/2011
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/17/2010
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 94

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 03/01/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/29/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Every 4 Years

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/28/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/28/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 01/07/2011
Date Data Arrived at EDR: 01/21/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 59

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 03/28/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2010
Date Data Arrived at EDR: 11/10/2010
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 98

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/22/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/18/2010
Date Data Arrived at EDR: 04/06/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 51

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/11/2011
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 34

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/13/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/14/2010
Date Data Arrived at EDR: 04/16/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 41

Source: EPA
Telephone: (206) 553-1200
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 03/01/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Biennially

UIC: Underground Injection Wells Listing

A listing of underground injection wells.

Date of Government Version: 02/23/2011
Date Data Arrived at EDR: 02/24/2011
Date Made Active in Reports: 03/18/2011
Number of Days to Update: 22

Source: Department of Ecology
Telephone: 360-407-6143
Last EDR Contact: 02/24/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Varies

WA MANIFEST: Hazardous Waste Manifest Data

Hazardous waste manifest information.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 05/13/2010
Date Made Active in Reports: 05/19/2010
Number of Days to Update: 6

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 04/25/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Annually

DRYCLEANERS: Drycleaner List

A listing of registered drycleaners who registered with the Department of Ecology (using the SIC code of 7215 and 7216) as hazardous waste generators.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 05/13/2010
Date Made Active in Reports: 05/19/2010
Number of Days to Update: 6

Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 04/25/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Varies

NPDES: Water Quality Permit System Data

A listing of permitted wastewater facilities.

Date of Government Version: 02/15/2011
Date Data Arrived at EDR: 02/18/2011
Date Made Active in Reports: 04/07/2011
Number of Days to Update: 48

Source: Department of Ecology
Telephone: 360-407-6073
Last EDR Contact: 04/25/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Quarterly

AIRS (EMI): Washington Emissions Data System

Emissions inventory data.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 01/11/2011
Date Made Active in Reports: 02/23/2011
Number of Days to Update: 43

Source: Department of Ecology
Telephone: 360-407-6040
Last EDR Contact: 03/28/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INACTIVE DRYCLEANERS: Inactive Drycleaners
A listing of inactive drycleaner facility locations.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 05/13/2010
Date Made Active in Reports: 05/19/2010
Number of Days to Update: 6

Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 04/25/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Annually

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/21/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/09/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Varies

FINANCIAL ASSURANCE 3: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/19/2007
Number of Days to Update: 44

Source: Department of Ecology
Telephone: 360-407-6136
Last EDR Contact: 03/24/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Varies

FINANCIAL ASSURANCE 1: Financial Assurance Information Listing
A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/22/2011
Date Data Arrived at EDR: 03/02/2011
Date Made Active in Reports: 03/18/2011
Number of Days to Update: 16

Source: Department of Ecology
Telephone: 360-586-1060
Last EDR Contact: 02/22/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Varies

FINANCIAL ASSURANCE 2: Financial Assurance Information Listing
A listing of financial assurance information for hazardous waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 11/30/2010
Date Made Active in Reports: 12/23/2010
Number of Days to Update: 23

Source: Department of Ecology
Telephone: 360-407-6754
Last EDR Contact: 02/22/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Varies

COAL ASH: Coal Ash Disposal Site Listing
A listing of coal ash disposal site locations.

Date of Government Version: 06/29/2009
Date Data Arrived at EDR: 07/02/2009
Date Made Active in Reports: 07/08/2009
Number of Days to Update: 6

Source: Department of Ecology
Telephone: 360-407-6933
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 04/19/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/18/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 01/01/2008
Date Data Arrived at EDR: 02/18/2009
Date Made Active in Reports: 05/29/2009
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 05/05/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/21/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: N/A

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

COUNTY RECORDS

KING COUNTY:

Abandoned Landfill Study in King County
The King County Abandoned Landfill Survey was conducted from October through December 1984 by the Health Department's Environmental Health Division at the request of the King County Council. The primary objective of the survey was to determine if any public health problems existed at the predetermined 24 sites.

Date of Government Version: 04/30/1985
Date Data Arrived at EDR: 11/07/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Seattle-King County Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 10/21/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SEATTLE COUNTY:

Abandoned Landfill Study in the City of Seattle
The Seattle Abandoned Landfill Survey was conducted in June and July of 1984 by the Health Department's Environmental Health Division at the request of the Mayor's Office. The primary objective of the survey was to determine if any public health problems existed at the predetermined 12 sites.

Date of Government Version: 07/30/1984
Date Data Arrived at EDR: 11/07/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Seattle - King County Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 10/21/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SEATTLE/KING COUNTY:

Seattle - King County Abandoned Landfill Toxicity / Hazard Assessment Project
This report presents the Seattle-King County Health Department's follow-up investigation of two city owned and four county owned abandoned landfills which was conducted from February to December 1986.

Date of Government Version: 12/31/1986
Date Data Arrived at EDR: 08/18/1995
Date Made Active in Reports: 09/20/1995
Number of Days to Update: 33

Source: Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 08/14/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SNOHOMISH COUNTY:

Solid Waste Sites of Record at Snohomish Health District
Solid waste disposal and/or utilization sites in Snohomish County.

Date of Government Version: 03/08/2011
Date Data Arrived at EDR: 03/31/2011
Date Made Active in Reports: 05/06/2011
Number of Days to Update: 36

Source: Snohomish Health District
Telephone: 206-339-5250
Last EDR Contact: 03/29/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Semi-Annually

TACOMA/PIERCE COUNTY:

Closed Landfill Survey

Following numerous requests for information about closed dumpsites and landfills in Pierce County, the Tacoma-Pierce County Health Department decided to conduct a study on the matter. The aim of the study was to evaluate public health risks associated with the closed dumpsites and landfills, and to determine the need, if any, for further investigations of a more detailed nature. The sites represent all of the known dumpsites and landfills closed after 1950.

Date of Government Version: 09/01/2002
Date Data Arrived at EDR: 03/24/2003
Date Made Active in Reports: 05/14/2003
Number of Days to Update: 51

Source: Tacoma-Pierce County Health Department
Telephone: 206-591-6500
Last EDR Contact: 03/19/2003
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 08/26/2009
Date Made Active in Reports: 09/11/2009
Number of Days to Update: 16

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/25/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 02/09/2011
Date Made Active in Reports: 03/04/2011
Number of Days to Update: 23

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 05/12/2011
Next Scheduled EDR Contact: 08/22/2011
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 12/01/2009
Date Made Active in Reports: 12/14/2009
Number of Days to Update: 13

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/04/2011
Next Scheduled EDR Contact: 07/06/2011
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 07/06/2010
Date Made Active in Reports: 07/26/2010
Number of Days to Update: 20

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/21/2011
Next Scheduled EDR Contact: 07/04/2011
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Daycare Center Listing
Source: Department of Social & Health Services
Telephone: 253-383-1735

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2009 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

GEOCHECK®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

KITSAP SITE
8091 SR3
PORT ORCHARD, WA 98367

TARGET PROPERTY COORDINATES

Latitude (North):	47.47680 - 47° 28' 36.5"
Longitude (West):	122.7905 - 122° 47' 25.8"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	515785.6
UTM Y (Meters):	5257954.0
Elevation:	339 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	47122-D7 BELFAIR, WA
Most Recent Revision:	1994

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

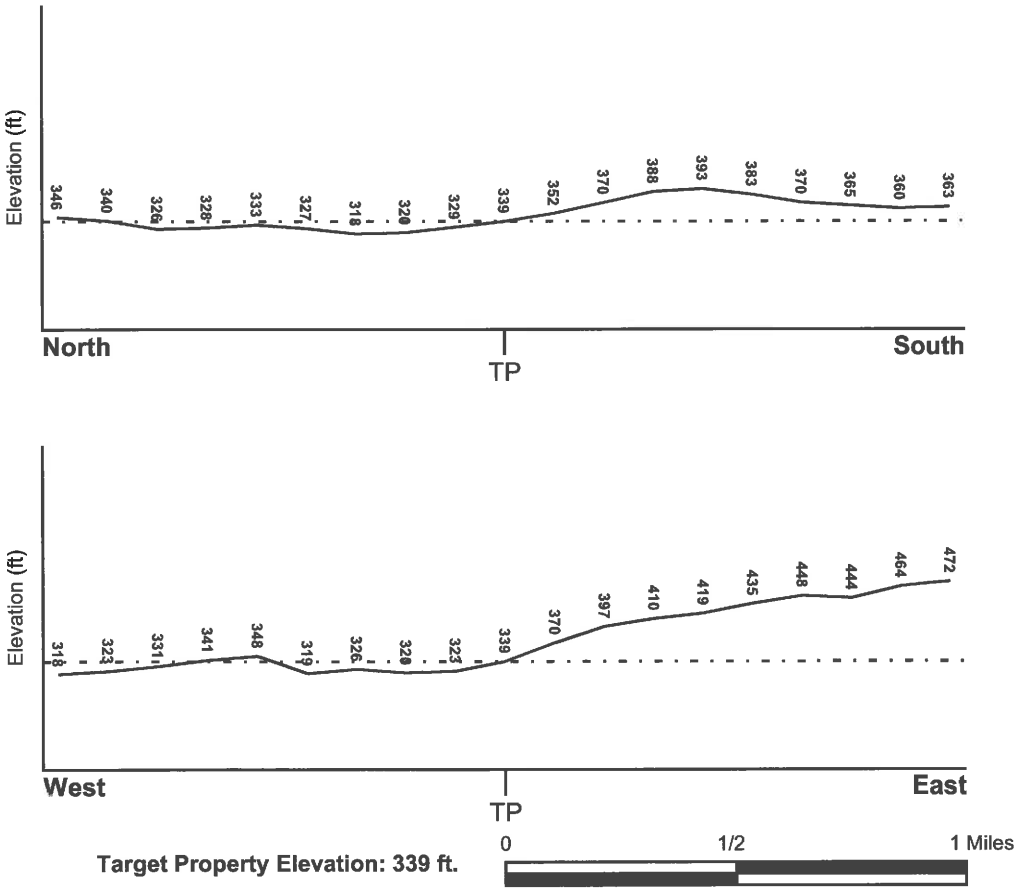
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
KITSAP, WA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property:	53035C - FEMA DFIRM Flood data
Additional Panels in search area:	5301150070C - FEMA Q3 Flood data 5301150135C - FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
BELFAIR	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

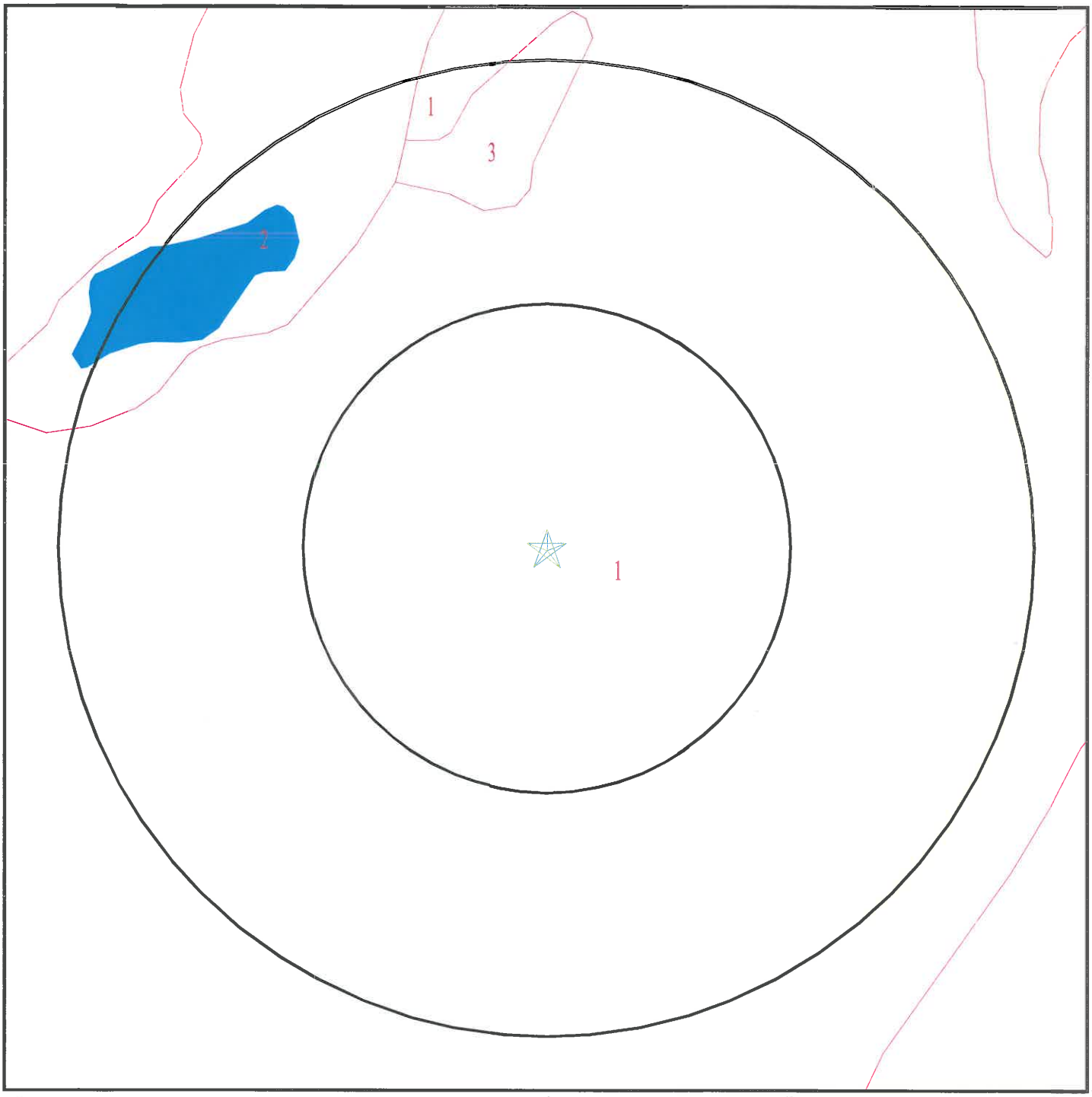
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 3074135.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

SITE NAME:	Kitsap Site	CLIENT:	EHS International, Inc.
ADDRESS:	8091 SR3	CONTACT:	Jason Cass
	Port Orchard WA 98367	INQUIRY #:	3074135.2s
LAT/LONG:	47.4768 / 122.7905	DATE:	May 19, 2011 6:59 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Alderwood

Soil Surface Texture: very gravelly sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 84 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	0 inches	very gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 0.42 Min: 0.01	Max: 6.5 Min: 6.1
2	0 inches	22 inches	very gravelly loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 0.42 Min: 0.01	Max: 6.5 Min: 6.1
3	22 inches	59 inches	very gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 0.42 Min: 0.01	Max: 6.5 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 2

Soil Component Name: Water

Soil Surface Texture: very gravelly sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class:
Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 3

Soil Component Name: McKenna

Soil Surface Texture: gravelly loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 0.42 Min: 0.01	Max: 6.5 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	5 inches	27 inches	very gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 0.42 Min: 0.01	Max: 6.5 Min: 6.1
3	27 inches	40 inches	very gravelly sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 0.42 Min: 0.01	Max: 6.5 Min: 6.1

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
6	USGS3276300	1/8 - 1/4 Mile West
B7	USGS3276348	1/4 - 1/2 Mile NNE
12	USGS3276299	1/2 - 1 Mile East

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

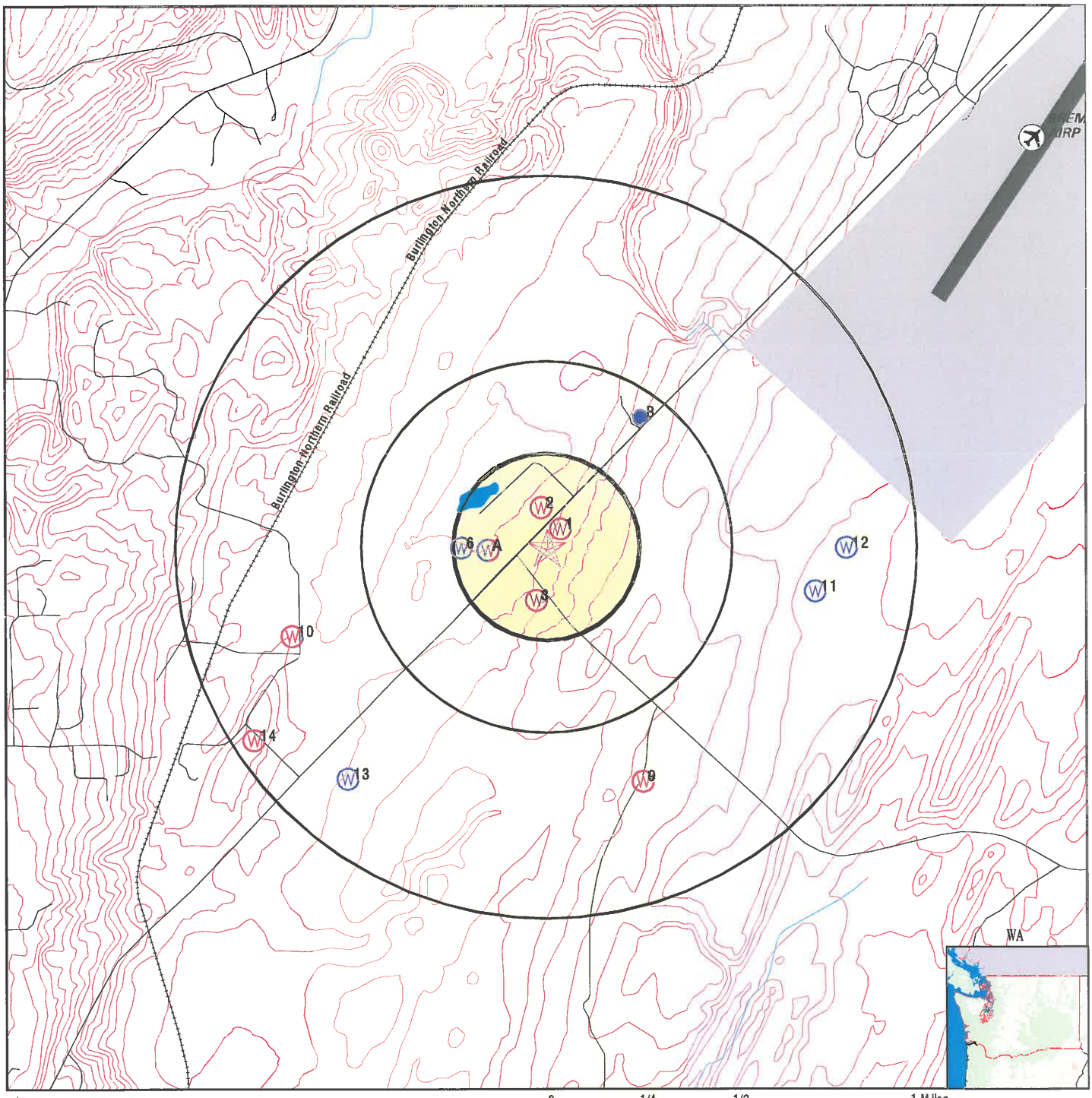
Note: PWS System location is not always the same as well location.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	WAK100000001785	0 - 1/8 Mile NE
2	WAK100000001797	0 - 1/8 Mile North
3	WAK100000001742	1/8 - 1/4 Mile SSW
A4	WAK100000001771	1/8 - 1/4 Mile West
A5	WAK100000001776	1/8 - 1/4 Mile West
B8	WAK100000001871	1/4 - 1/2 Mile NE
9	WA7000000012078	1/2 - 1 Mile SSE
10	WA7000000012136	1/2 - 1 Mile WSW
11	WA7000000012161	1/2 - 1 Mile East
13	WA7000000012080	1/2 - 1 Mile SW
14	WA7000000012103	1/2 - 1 Mile WSW

PHYSICAL SETTING SOURCE MAP - 3074135.2s



- County Boundary
- Major Roads
- Contour Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data

SITE NAME:	Kitsap Site	CLIENT:	EHS International, Inc.
ADDRESS:	8091 SR3 Port Orchard WA 98367	CONTACT:	Jason Cass
LAT/LONG:	47.4768 / 122.7905	INQUIRY #:	3074135.2s
		DATE:	May 19, 2011 6:59 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
1		
NE	**WA WELLS**	**WAK100000001785**
0 - 1/8 Mile		
Higher		

Well id:	608207147		
Doe site id:	AGQ046		
Usgs site id:	Not Reported		
Internal project no:	Not Reported		
Local name:	Not Reported		
Local number:	23N/01W-15P01		
Water right permit no:	Not Reported		
Parcel id:	15230130131002		
Township:	23		
Range:	1		
Meridian:	W		
Section:	15		
Quarter quarter1:	SE		
Quarter quarter2:	SW		
Elevation:	320		
Well address:	Not Reported		
Well city:	Not Reported		
Well state:	Not Reported		
Well zip:	Not Reported		
Date entered:	10/7/2002 11:39:22		
Owner first:	ROBERT & JODIE		
Owner last:	MANSFIELD		
Owner address1:	BELFAIR HWY & LAKE FLORA		
Owner address2:	Not Reported		
Owner city:	PORT ORCHARD		
Owner state:	WA		
Owner zip:	Not Reported		
WI date:	8/6/2002 0:00:00	Water level:	62
Status:	Not Reported		

Well Log Information:

Well log id:	119756432	Well id:	608207147
Startcard:	Not Reported	Waterright permitno:	Not Reported
Proposed use:	Domestic	Proposed type:	Not Reported
Type of work:	New Well	Drilling method:	Cable
Diameter of well:	6	Well depth drilled:	98
Well depth completed:	98	Elevation:	Not Reported
Pumpman:	WEBTROL	Pumptype:	SUB
Pump modelno:	3/4 HP	Pump horsepower:	Not Reported
Pump intake:	0	Start construction:	07/25/2002
End construction:	08/05/2002	Date entered:	10/07/2002
Fieldchecked by kpud:	0	Water temp:	0
chem anal:	1	Artpress date:	Not Reported
Art flow:	0	Artflow date:	Not Reported
Artpress:	Not Reported	Artcontrol:	Not Reported
Art elevation:	Not Reported	By whom:	by Driller
Bailer airtest yn:	0	perf yn:	0
screens yn:	1	Gravel packyn:	0
Surface seal yn:	1	Well test yn:	1
Survey date:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Geologic Information:

Well id:	608207147	Geolog id:	-291346835
Geolog from:	2	Geolog to:	11
Material:	BROWN SAND		
Date entered:	10/07/2002		

Well id:	608207147	Geolog id:	-227683992
Geolog from:	98	Geolog to:	98.010000000000005
Material:	BROWN TILL		
Date entered:	10/07/2002		

Well id:	608207147	Geolog id:	-110129252
Geolog from:	0	Geolog to:	2
Material:	BROWN TOP		
Date entered:	10/07/2002		

Well id:	608207147	Geolog id:	-1102657949
Geolog from:	90	Geolog to:	98
Material:	BROWNS AND AND GRAVEL W/B		
Date entered:	10/07/2002		

Well id:	608207147	Geolog id:	349302570
Geolog from:	11	Geolog to:	90
Material:	BROWN TIGHT SAND		
Date entered:	10/07/2002		

Casing Information:

Well id:	608207147	Casing id:	-721709231
Casing from:	0	Casing to:	93
Casing diameter:	6	Casing thickness:	Not Reported
Casing type:	Welded	Date entered:	10/07/2002

Screen Information:

Well id:	608207147	Screen id:	2037145406
Screen from:	93	Screen to:	98
Screen man:	WESCO	Screen type:	SS
Model num:	Not Reported	Screen diam:	5
Screen slotsize:	.017999999999999999	Date entered:	10/07/2002

Seal Information:

Well id:	608207147	Seal id:	-820088345
Seal top:	0	Seal bottom:	1.8E+001
Seal material:	Bentonite	Unusable water:	Not Reported
Water type:	Not Reported	Strata depth:	Not Reported
Seal method:	Not Reported	Date entered:	10/07/2002

Waterlevel Information:

Wellid:	608207147	Wlid:	-1720631479
Wldate:	08/06/2002	Waterlevel:	62
Status:	ST	Method:	Not Reported
Accuracy:	Not Reported	Installflag:	0
Artpress:	Not Reported	Artdate:	Not Reported
Artcontrol:	Not Reported	Elevation:	Not Reported
Stickup:	Not Reported		
Remark:	PUMPING TEST DONE BY DRIFLLER		

Wellid:	608207147	Wlid:	-586959402
Wldate:	08/06/2002	Waterlevel:	66
Status:	P	Method:	Not Reported
Accuracy:	Not Reported	Installflag:	0
Artpress:	Not Reported	Artdate:	Not Reported
Artcontrol:	Not Reported	Elevation:	Not Reported
Stickup:	Not Reported		
Remark:	PUMPING 20 GPM AT 4 FT DRAWDOWN AFTER ONE HOUR		

Wellid:	608207147	Wlid:	-159040865
Wldate:	08/07/2002	Waterlevel:	Not Reported
Status:	Not Reported	Method:	Not Reported
Accuracy:	Not Reported	Installflag:	0
Artpress:	Not Reported	Artdate:	Not Reported
Artcontrol:	Not Reported	Elevation:	Not Reported
Stickup:	1		
Remark:	BKCHD/LUM		

Well test Recovery Information:

Wellid:	608207147	Date of test:	08/06/2002
Testtype:	1	Time:	0
Waterlevel:	66		

Wellid:	608207147	Date of test:	08/06/2002
Testtype:	1	Time:	1
Waterlevel:	63		

Wellid:	608207147	Date of test:	08/06/2002
Testtype:	1	Time:	2
Waterlevel:	62		

Well Test Yield Information:

Wellid:	608207147	Date of test:	08/06/2002
Test type:	1	Time:	1
Yield:	20	Drawdown:	4
Date entered:	10/07/2002		

Wellid:	608207147	Date of test:	08/06/2002
Test type:	2	Time:	2
Yield:	12	Drawdown:	1
Date entered:	10/07/2002		

Water Quality Information:

Sample id:	-724162572	Well id:	608207147
Sample id:	8/6/02	sample date:	08/06/2002
Treated YN:	0		
Comments:	Collected by Olsen Drilling. Twiss Lab#01076873		

2
North
0 - 1/8 Mile
Lower

WA WELLS **WAK100000001797**

3
SSW **WA WELLS** **WAK100000001742**
1/8 - 1/4 Mile
Higher

Well id:	607		
Doe site id:	Not Reported		
Usgs site id:	472829122472801		
Internal project no:	Not Reported		
Local name:	Not Reported		
Local number:	23N/01W-22C01		
Water right permit no:	Not Reported		
Parcel id:	Not Reported		
Township:	23		
Range:	1		
Meridian:	W		
Section:	22		
Quarter quarter1:	NE		
Quarter quarter2:	NW		
Elevation:	330		
Well address:	Not Reported		
Well city:	Not Reported		
Well state:	Not Reported		
Well zip:	Not Reported		
Date entered:	7/25/1988 0:00:00		
Owner first:	EARL		
Owner last:	SANDE		
Owner address1:	ROUTE 1, BOX 145		
Owner address2:	Not Reported		
Owner city:	BELFAIR		
Owner state:	WA		
Owner zip:	98528		
WI date:	6/21/1978 0:00:00	Water level:	119
Status:	Not Reported		

Well Log Information:

Well log id:	606	Well id:	607
Startcard:	Not Reported	Waterright permitno:	Not Reported
Proposed use:	Domestic	Proposed type:	Not Reported
Type of work:	New Well	Drilling method:	CABLE
Diameter of well:	6	Well depth drilled:	149
Well depth completed:	149	Elevation:	Not Reported
Pumpman:	Not Reported	Pumptype:	Not Reported
Pump modelno:	Not Reported	Pump horsepower:	Not Reported
Pump intake:	0	Start construction:	06/12/1978
End construction:	06/21/1978	Date entered:	07/25/1988
Fieldchecked by kpud:	0	Water temp:	0
chem anal:	0	Artpress date:	Not Reported
Art flow:	0	Artflow date:	Not Reported
Artpress:	Not Reported	Artcontrol:	Not Reported
Art elevation:	Not Reported	By whom:	Not Reported
Bailer airtest yn:	0	perf yn:	0
screens yn:	1	Gravel packyn:	0
Surface seal yn:	1	Well test yn:	0
Survey date:	Not Reported		

Geologic Information:

Well id:	607	Geolog id:	1167
Geolog from:	3	Geolog to:	19
Material:	GRAY SAND, CLAY, GRAVEL-CEMENTED		
Date entered:	07/25/1988		

Well id:	607	Geolog id:	1168
Geolog from:	19	Geolog to:	52
Material:	BROWN SAND, CLAY, GRAVEL-CEMENTED		
Date entered:	07/25/1988		

Well id:	607	Geolog id:	1169
Geolog from:	52	Geolog to:	69
Material:	GRAY BROWN SAND & CLAY-PACKED		
Date entered:	07/25/1988		

Well id:	607	Geolog id:	1170
Geolog from:	69	Geolog to:	95
Material:	BROWN SAND, CLAY, GRAVEL-CEMENTED		
Date entered:	07/25/1988		

Well id:	607	Geolog id:	1171
Geolog from:	95	Geolog to:	109
Material:	BROWN SAND & CLAY-PACKED		
Date entered:	07/25/1988		

Well id:	607	Geolog id:	1172
Geolog from:	109	Geolog to:	125
Material:	GRAY BROWN SAND, DRY		
Date entered:	07/25/1988		

Well id:	607	Geolog id:	55367
Geolog from:	0	Geolog to:	3
Material:	BROWN CLAY & STONES		
Date entered:	01/07/1997		

Well id:	607	Geolog id:	55368
Geolog from:	125	Geolog to:	149
Material:	W.B. GRAY SAND & GRAVEL TO 1 ,2"		
Date entered:	01/07/1997		

Casing Information:

Well id:	607	Casing id:	525
Casing from:	0	Casing to:	144
Casing diameter:	6	Casing thickness:	0
Casing type:	Welded	Date entered:	07/25/1988

Screen Information:

Well id:	607	Screen id:	299
Screen from:	144	Screen to:	149
Screen man:	JOHNSON	Screen type:	SS
Model num:	Not Reported	Screen diam:	6
Screen slotsize:	.014999999999999999	Date entered:	Not Reported

Seal Information:

Well id:	607	Seal id:	201
Seal top:	0	Seal bottom:	1.8E+001
Seal material:	BENTONITE	Unusable water:	Not Reported
Water type:	Not Reported	Strata depth:	0
Seal method:	Not Reported	Date entered:	07/25/1988

Well Test Yield Information:

Wellid:	607	Date of test:	06/21/1978
Test type:	2	Time:	4
Yield:	13	Drawdown:	8
Date entered:	05/27/1996		

A4
West
1/8 - 1/4 Mile
Lower

WA WELLS **WAK100000001771**

Well id:	619		
Doe site id:	Not Reported		
Usgs site id:	472835122473701		
Internal project no:	Not Reported		
Local name:	Not Reported		
Local number:	23N/01W-22C02		
Water right permit no:	Not Reported		
Parcel id:	Not Reported		
Township:	23		
Range:	1		
Meridian:	W		
Section:	22		
Quarter quarter1:	NE		
Quarter quarter2:	NW		
Elevation:	310		
Well address:	Not Reported		
Well city:	Not Reported		
Well state:	Not Reported		
Well zip:	Not Reported		
Date entered:	7/25/1988 0:00:00		
Owner first:	RICHARD G		
Owner last:	SHARP		
Owner address1:	914 13TH		
Owner address2:	Not Reported		
Owner city:	BREMERTON		
Owner state:	WA		
Owner zip:	98310		
Wl date:	12/29/1975 0:00:00	Water level:	68
Status:	Not Reported		

Well Log Information:

Well log id:	618	Well id:	619
Startcard:	Not Reported	Waterright permitno:	Not Reported
Proposed use:	Domestic	Proposed type:	Irrigation
Type of work:	New Well	Drilling method:	CABLE
Diameter of well:	6	Well depth drilled:	101
Well depth completed:	101	Elevation:	Not Reported
Pumpman:	Not Reported	Pumptype:	Not Reported
Pump modelno:	Not Reported	Pump horsepower:	Not Reported
Pump intake:	0	Start construction:	12/23/1975
End construction:	12/29/1975	Date entered:	07/25/1988

Fieldchecked by kpud:	0	Water temp:	0
chem anal:	0	Artpress date:	Not Reported
Art flow:	0	Artflow date:	Not Reported
Artpress:	Not Reported	Artcontrol:	Not Reported
Art elevation:	Not Reported	By whom:	Not Reported
Bailer airtest yn:	0	perf yn:	0
screens yn:	1	Gravel packyn:	0
Surface seal yn:	1	Well test yn:	0
Survey date:	Not Reported		

Geologic Information:

Well id:	619	Geolog id:	1173
Geolog from:	0	Geolog to:	23
Material:	BROWN SAND, GRAVEL, CLAY		
Date entered:	07/25/1988		

Well id:	619	Geolog id:	1174
Geolog from:	23	Geolog to:	88
Material:	BROWN SAND, GRAVEL		
Date entered:	07/25/1988		

Well id:	619	Geolog id:	55369
Geolog from:	88	Geolog to:	101
Material:	BROWN SAND, GRAVEL, WATER		
Date entered:	01/07/1997		

Casing Information:

Well id:	619	Casing id:	536
Casing from:	0	Casing to:	94
Casing diameter:	6	Casing thickness:	0
Casing type:	Welded	Date entered:	07/25/1988

Screen Information:

Well id:	619	Screen id:	302
Screen from:	94	Screen to:	100
Screen man:	JOHNSON	Screen type:	Not Reported
Model num:	Not Reported	Screen diam:	6
Screen slotsize:	.017999999999999999	Date entered:	Not Reported

Seal Information:

Well id:	619	Seal id:	204
Seal top:	0	Seal bottom:	1.8E+001
Seal material:	BENTONITE	Unusable water:	Not Reported
Water type:	Not Reported	Strata depth:	0
Seal method:	Not Reported	Date entered:	07/25/1988

Well Test Yield Information:

Wellid:	619	Date of test:	12/29/1975
Test type:	2	Time:	1
Yield:	30	Drawdown:	2
Date entered:	05/27/1996		

A5
West
1/8 - 1/4 Mile
Lower

WA WELLS **WAK100000001776**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Well id:	623
Doe site id:	Not Reported
Usgs site id:	472837122473901
Internal project no:	Not Reported
Local name:	Not Reported
Local number:	23N/01W-15N01
Water right permit no:	Not Reported
Parcel id:	Not Reported
Township:	23
Range:	1
Meridian:	W
Section:	15
Quarter quarter1:	SW
Quarter quarter2:	SW
Elevation:	320
Well address:	Not Reported
Well city:	Not Reported
Well state:	Not Reported
Well zip:	Not Reported
Date entered:	2/1/1988 0:00:00
Owner first:	Not Reported
Owner last:	Not Reported
Owner address1:	Not Reported
Owner address2:	Not Reported
Owner city:	Not Reported
Owner state:	Not Reported
Owner zip:	Not Reported
WI date:	Not Reported
Status:	Not Reported
Water level:	Not Reported

Well Log Information:

Well log id:	622	Well id:	623
Startcard:	Not Reported	Waterright permitno:	Not Reported
Proposed use:	Not Reported	Proposed type:	Not Reported
Type of work:	Not Reported	Drilling method:	DUG
Diameter of well:	Not Reported	Well depth drilled:	Not Reported
Well depth completed:	14	Elevation:	Not Reported
Pumpman:	Not Reported	Pumptype:	Not Reported
Pump modelno:	Not Reported	Pump horsepower:	Not Reported
Pump intake:	0	Start construction:	01/01/1946
End construction:	01/01/1946	Date entered:	02/01/1988
Fieldchecked by kpud:	0	Water temp:	0
chem anal:	0	Artpress date:	Not Reported
Art flow:	0	Artflow date:	Not Reported
Artpress:	Not Reported	Artcontrol:	Not Reported
Art elevation:	Not Reported	By whom:	Not Reported
Bailer airtest yn:	0	perf yn:	0
screens yn:	0	Gravel packyn:	0
Surface seal yn:	0	Well test yn:	0
Survey date:	Not Reported		

Casing Information:

Well id:	623	Casing id:	540
Casing from:	Not Reported	Casing to:	Not Reported
Casing diameter:	60	Casing thickness:	0
Casing type:	Not Reported	Date entered:	02/01/1988

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database	EDR ID Number
FED USGS	USGS3276300

6
West
1/8 - 1/4 Mile
Lower

Agency cd:	USGS	Site no:	472837122473901
Site name:	23N/01W-15N01		
Latitude:	472837	EDR Site id:	USGS3276300
Longitude:	1224739	Dec lat:	47.4767604
Dec lon:	-122.79542037	Coor meth:	M
Coor accr:	T	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	53
State:	53	County:	035
Country:	US	Land net:	SW SW S15 T23N R01W W
Location map:	Not Reported	Map scale:	Not Reported
Altitude:	320		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Hood Canal. Washington. Area = 957 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19460101
Date inventoried:	Not Reported	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	14	Hole depth:	Not Reported
Source of depth data:	driller		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

Database	EDR ID Number
FED USGS	USGS3276348

B7
NNE
1/4 - 1/2 Mile
Higher

Agency cd:	USGS	Site no:	472855122470401
Site name:	23N/01W-15K01		
Latitude:	472855	EDR Site id:	USGS3276348
Longitude:	1224704	Dec lat:	47.48176037
Dec lon:	-122.78569781	Coor meth:	M
Coor accr:	M	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	53
State:	53	County:	035
Country:	US	Land net:	NW SE S15 T23N R01W W
Location map:	Not Reported	Map scale:	Not Reported

Altitude:	360		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	20		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Hood Canal. Washington. Area = 957 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19470101
Date inventoried:	Not Reported	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	233	Hole depth:	Not Reported
Source of depth data:	owner		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1947-01-01	Ground water data end date:	1947-01-01
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1947-01-01	90	

B8
NE
1/4 - 1/2 Mile
Higher

WA WELLS **WAK100000001871**

Well id:	654
Doe site id:	Not Reported
Usgs site id:	472855122470401
Internal project no:	Not Reported
Local name:	Not Reported
Local number:	23N/01W-15K01
Water right permit no:	Not Reported
Parcel id:	Not Reported
Township:	23
Range:	1
Meridian:	W
Section:	15
Quarter quarter1:	NW
Quarter quarter2:	SE
Elevation:	360
Well address:	Not Reported
Well city:	Not Reported
Well state:	Not Reported
Well zip:	Not Reported
Date entered:	2/1/1988 0:00:00
Owner first:	Not Reported
Owner last:	Not Reported
Owner address1:	Not Reported
Owner address2:	Not Reported

Owner city:	Not Reported		
Owner state:	Not Reported		
Owner zip:	Not Reported		
WI date:	1/1/1947 0:00:00	Water level:	90
Status:	Not Reported		

Well Log Information:

Well log id:	653	Well id:	654
Startcard:	Not Reported	Waterright permitno:	Not Reported
Proposed use:	Not Reported	Proposed type:	Not Reported
Type of work:	Not Reported	Drilling method:	CABLE
Diameter of well:	Not Reported	Well depth drilled:	Not Reported
Well depth completed:	233	Elevation:	Not Reported
Pumpman:	Not Reported	Pumptype:	Not Reported
Pump modelno:	Not Reported	Pump horsepower:	Not Reported
Pump intake:	0	Start construction:	01/01/1947
End construction:	01/01/1947	Date entered:	02/01/1988
Fieldchecked by kpud:	0	Water temp:	0
chem anal:	0	Artpress date:	Not Reported
Art flow:	0	Artflow date:	Not Reported
Artpress:	Not Reported	Artcontrol:	Not Reported
Art elevation:	Not Reported	By whom:	Not Reported
Bailer airtest yn:	0	perf yn:	0
screens yn:	1	Gravel packyn:	0
Surface seal yn:	0	Well test yn:	0
Survey date:	Not Reported		

Casing Information:

Well id:	654	Casing id:	568
Casing from:	Not Reported	Casing to:	Not Reported
Casing diameter:	6	Casing thickness:	0
Casing type:	Not Reported	Date entered:	02/01/1988

Screen Information:

Well id:	654	Screen id:	321
Screen from:	0	Screen to:	223
Screen man:	Not Reported	Screen type:	Not Reported
Model num:	Not Reported	Screen diam:	Not Reported
Screen slotsize:	Not Reported	Date entered:	Not Reported

9
SSE
1/2 - 1 Mile
Higher

WA WELLS **WA7000000012078**

Objectid:	18252	Pwsid:	07383
Srcnum:	01	Pwssrcid:	0738301
Systemname:	Pad-N-Lock		
Systemgrou:	B		
Systemtype:	GRPB	Region:	SW
County:	KITSAP	Smaid:	119
Ftrespopul:	5	Resconnect:	2
Totalconne:	4	Srcname:	ROUNDTREE PARK

Srctype:	W	Srcusecode:	P
Srcwelldep:	149	Township:	23
Range:	01	Section:	22
Qtrqtrsect:	SWNW		
Longitude:	-122.785		
Latitude:	47.46766		
Latlongmet:	QtrQtrSection	Srcsuscept:	N
Srcvulnioc:	U	Srcvulnvoc:	H
Srcvulnsoc:	X	Doewelltag:	Not Reported
Srctot6mo:	0	Srctot1yr:	0
Srctot5yr:	0	Srctot10yr:	0
Protection:	Assigned	Pricontact:	3608760958
Priconta 1:	NORTHWEST WATER SYSTEMS INC	Priconta 2:	PO BOX 123
Priconta 3:	PORT ORCHARD	Priconta 4:	WA
Priconta 5:	983660123		
Priconta 6:	reg@nwwatersystems.com		
Pwseffecti:	08/16/1999	Srceffecti:	08/16/1999
Internalon:	N	Site id:	WA7000000012078

10
WSW
1/2 - 1 Mile
Lower

WA WELLS **WA7000000012136**

Objectid:	15309	Pwsid:	AB144
Srcnum:	01	Pwssrcid:	AB14401
Systemname:	NORTH MASON FIBER		
Systemgrou:	B		
Systemtype:	GRPB	Region:	SW
County:	MASON	Smaid:	119
Ftrespopul:	0	Resconnect:	0
Totalconne:	1	Srcname:	WELL #1
Srctype:	W	Srcusecode:	P
Srcwelldep:	135	Township:	23
Range:	01W	Section:	21
Qtrqtrsect:	NWNE		
Longitude:	-122.805162		
Latitude:	47.473319		
Latlongmet:	GPS	Srcsuscept:	U
Srcvulnioc:	Not Reported	Srcvulnvoc:	Not Reported
Srcvulnsoc:	Not Reported	Doewelltag:	Not Reported
Srctot6mo:	0	Srctot1yr:	0
Srctot5yr:	0	Srctot10yr:	0
Protection:	Assigned	Pricontact:	3608760958
Priconta 1:	NORTHWEST WATER SYSTEMS INC	Priconta 2:	PO BOX 123
Priconta 3:	PORT ORCHARD	Priconta 4:	WA
Priconta 5:	983660123		
Priconta 6:	reg@nwwatersystems.com		
Pwseffecti:	07/05/2005	Srceffecti:	06/17/2005
Internalon:	N	Site id:	WA7000000012136

11
East
1/2 - 1 Mile
Higher

WA WELLS **WA7000000012161**

Objectid:	10564	Pwsid:	49121
Srcnum:	01	Pwssrcid:	4912101
Systemname:	PONDEROSA		
Systemgrou:	B		
Systemtype:	GRPB	Region:	SW
County:	MASON	Smaid:	Not Reported
Ftrespopul:	13	Resconnect:	7
Totalconne:	7	Srcname:	WELL #1
Srctype:	W	Srcusecode:	P
Srcwelldep:	110	Township:	23
Range:	01W	Section:	23
Qtrqtrsect:	NWNW		
Longitude:	-122.775		
Latitude:	47.47506		
Latlongmet:	QtrQtrSe	Srcsuscept:	U
Srcvulnioc:	Not Reported	Srcvulnvoc:	Not Reported
Srcvulnsoc:	Not Reported	Doewelltag:	Not Reported
Srctot6mo:	0	Srctot1yr:	0
Srctot5yr:	0	Srctot10yr:	0
Protection:	Assigned	Pricontact:	3602751646
Priconta 1:	Not Reported	Priconta 2:	NE 2561 OLD BELFAIR HWY
Priconta 3:	BELFAIR	Priconta 4:	WA
Priconta 5:	98528		
Priconta 6:	Not Reported		
Pwseffecti:	05/01/1988	Srceffecti:	01/01/1970
Internalon:	N	Site id:	WA7000000012161

12
East
1/2 - 1 Mile
Higher

FED USGS **USGS3276299**

Agency cd:	USGS	Site no:	472837122461901
Site name:	23N/01W-14P01		
Latitude:	472837	EDR Site id:	USGS3276299
Longitude:	1224619	Dec lat:	47.47676043
Dec lon:	-122.773197	Coor meth:	M
Coor accr:	T	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	53
State:	53	County:	035
Country:	US	Land net:	SE SW S14 T23N R01W W
Location map:	Not Reported	Map scale:	Not Reported
Altitude:	460		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	20		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Hood Canal. Washington. Area = 957 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19490101
Date inventoried:	Not Reported	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	Not Reported
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00

Peak flow data count: 0
Water quality data end date: 0000-00-00
Ground water data begin date: 1949-09-01
Ground water data count: 1

Water quality data begin date: 0000-00-00
Water quality data count: 0
Ground water data end date: 1949-09-01

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1949-09-01	32	

13
SW
1/2 - 1 Mile
Higher

WA WELLS **WA7000000012080**

Objectid:	19238	Pwsid:	52101
Srcnum:	01	Pwssrcid:	5210101
Systemname:	MAUST		
Systemgrou:	B		
Systemtype:	GRPB	Region:	SW
County:	MASON	Smaid:	119
Ftrespopul:	7	Resconnect:	6
Totalconne:	6	Srcname:	WELL #1 NO TAG
Srctype:	W	Srcusecode:	P
Srcwelldep:	65	Township:	23
Range:	01	Section:	21
Qtrqtrsect:	SWNE		
Longitude:	-122.802		
Latitude:	47.46775		
Latlongmet:	QtrQtrSection	Srcsuscept:	H
Srcvulnioc:	H	Srcvulnvoc:	H
Srcvulnsoc:	U	Doewelltag:	Not Reported
Srctot6mo:	0	Srctot1yr:	0
Srctot5yr:	0	Srctot10yr:	0
Protection:	Assigned	Pricontact:	3608760958
Priconta 1:	NORTHWEST WATER SYSTEMS INC	Priconta 2:	PO BOX 123
Priconta 3:	PORT ORCHARD	Priconta 4:	WA
Priconta 5:	983660123		
Priconta 6:	reg@nwwatersystems.com		
Pwseffecti:	11/01/1979	Srceffecti:	01/01/1970
Internalon:	N	Site id:	WA7000000012080

14
WSW
1/2 - 1 Mile
Lower

WA WELLS **WA7000000012103**

Objectid:	2690	Pwsid:	04307
Srcnum:	01	Pwssrcid:	0430701
Systemname:	SHEARER, ALLEN TRUCKING		
Systemgrou:	B		
Systemtype:	GRPB	Region:	SW
County:	MASON	Smaid:	Not Reported
Ftrespopul:	0	Resconnect:	0
Totalconne:	3	Srcname:	WELL #1

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Srctype:	W	Srcusecode:	P
Srcwelldep:	90	Township:	23
Range:	01W	Section:	21
Qtrqtrsect:	NWSE		
Longitude:	-122.807354		
Latitude:	47.469263		
Latlongmet:	GPS	Srcsuscept:	U
Srcvulnioc:	Not Reported	Srcvulnvoc:	Not Reported
Srcvulnsoc:	Not Reported	Doewelltag:	Not Reported
Srctot6mo:	0	Srctot1yr:	0
Srctot5yr:	0	Srctot10yr:	0
Protection:	Assigned	Pricontact:	3602753465
Priconta 1:	Not Reported	Priconta 2:	P O BOX 789
Priconta 3:	BELFAIR	Priconta 4:	WA
Priconta 5:	98528		
Priconta 6:	Not Reported		
Pwseffecti:	12/19/1994	Srceffecti:	12/19/1994
Internalon:	N	Site id:	WA7000000012103

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for KITSAP County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for KITSAP COUNTY, WA

Number of sites tested: 21

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.143 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.400 pCi/L	100%	0%	0%
Basement	0.647 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2009 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Wells
Source: Department of Health
Telephone: 360-236-3148
Group A and B well locations.

Water Well Listing
Source: Public Utility District
Telephone: 206-779-7656
A listing of water well locations in Kitsap County.

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Listing
Source: Department of Natural Resources
Telephone: 360-902-1445
Locations that represent oil and gas test well sites in Washington State from 1890 to present.

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

EHS–International, Inc.

MASON SITE #1
PHASE I ENVIRONMENTAL SITE ASSESSMENT
FINAL REPORT

Prepared for:
Mr. Jim Petrich
Integrus Architecture
117 South Main Street, Suite 100
Seattle, Washington 98104

Site Location:
West Dayton Airport Road
Shelton, Washington 98584

Prepared by:
EHS – International, Inc.
13228 NE 20th Street, Suite 100
Bellevue, Washington 98005

June 24, 2011

MASON SITE #1
PHASE I ENVIRONMENTAL SITE ASSESSMENT
DAYTON AIRPORT ROAD
SHELTON, WASHINGTON 98584

FINAL REPORT

Prepared for:
Mr. Jim Petrich
Integrus Architecture
117 South Main Street, Suite 100
Seattle, Washington 98104

Prepared by:
EHS International, Inc.
13228 NE 20th Street, Suite 100
Bellevue, Washington 98005

June 24, 2011

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APPENDICES

EXECUTIVE SUMMARY

EHS - International, Inc. (EHSI) prepared this Final Report to document a Phase I Environmental Site Assessment (ESA) of the Mason Site #1 property (subject property) located in Shelton, Washington. Mr. Jim Petrich of Integrus Architecture requested the Phase I ESA to accomplish due diligence for a potential purchase of the property. Mr. Petrich gave EHSI authorization to proceed with the Phase I ESA project in October 2010. The address for the subject property is 1100 West Dayton Airport Road, Shelton, Washington 98584.

SITE OVERVIEW

The subject property includes approximately 25 acres set within an irregularly-shaped Mason County parcel covering a total of 497-acres of land. The subject property is currently vacant forested land.

ADJACENT PROPERTIES

To the north, the subject property borders vacant forestland. Undeveloped forest land extends to the south of the subject property with a Department of Corrections facility beyond. The subject property is bounded on the west by State Highway 112 and a Mason County PUD cogenerating station. The subject property is bounded on the east by vacant forested land, a single-family residence, and an auto wrecking yard (Shelton Auto Wrecking).

SITE RECONNAISSANCE AND DATABASE SEARCH RESULTS

EHSI conducted an inspection of the subject property on June 7, 2011. There were no weather or access related limitations occurring during the inspection.

An Environmental Data Resources, Inc. (EDR) Database Search Report of the subject property for publicly available information contained in federal and state environmental databases was done to ASTM Standard search radii. The subject property is not listed on any federal or state regulatory environmental databases.

A review of the EDR database search report, including sites listed in the orphan site summary identified two sites with either documented releases of hazardous materials or facilities that manage hazardous materials in significant quantities.

The closest listed facility, Shelton Auto Wrecking located at 1501 West Dayton Airport Road. Shelton Auto Wrecking is located adjacent and to the northeast of the subject property in an inferred up-gradient hydrologic position. The facility appears on the ALLSITES and Solid Waste Facility databases as a recycling business. No violations or reported releases are noted for this business. Based on no reported releases and/or violations, EHSI does not consider this adjacent and up-gradient facility as a potential source for a REC to the subject property.

The second evaluated site is Mason County Landfill, located at 501 West Eells Hill Road. The Mason County Landfill is located across Highway 112, to the west of the subject property in an up-gradient hydrologic position. The Mason County Landfill appears on the Landfill, CSCSL-NFA, and UST databases. Based on a determination of No Further Action (NFA) by the Washington State Department of Ecology (Ecology) Volunteer Cleanup Program (VCP), EHSI does not consider this Mason County Landfill as a potential source for a REC to the subject property.

The other listed facilities are located either down-gradient or greater than a 1/8 mile radius from the subject property and EHSI does not consider these properties as potential RECs to the subject property.

CURRENT OPERATIONS

The subject property currently vacant and is covered with trees and low brushes.

FINDINGS

The subject property has been vacant forest land since at least 1951. No evidence of significant chemical handling, use, or storage was identified for the subject property. No evidence of past or current underground storage tanks (UST) was found for the subject property.

CONCLUSIONS

Based on information gathered as part of this Phase I ESA, no RECs were identified for the subject property or its environs.

RECOMMENDATIONS

Based on our research in conducting this Phase I ESA, we believe that a thorough analysis of potential environmental liabilities has been conducted in accordance to the ASTM Phase I ESA Standard (E 1527-05) and USEPA AAI Rule at the subject property. Based upon our Phase I research findings, no additional action appears warranted at this time.

1 INTRODUCTION

EHSI prepared this Final Report to document a Phase I ESA of property referred to here as the subject property. Mr. Jim Pet rich of Integrus Architecture requested the Phase I ESA to fulfill environmental due diligence for a potential purchase of the subject property. Mr. Petrich gave EHSI authorization to proceed with the Phase I ESA project in October, 2010. The address for the subject property is 1100 West Dayton Airport Road, Shelton, Washington 98584 (Figure 1).

1.1 REPORT ORGANIZATION

This report consists of an executive summary, followed by sections which describe elements of EHSI's Phase I ESA. Two figures, a table, and two supporting appendices accompany this report. Figure 1 is the site location map and Figure 2 is the site plot plan. Appendix A provides select site photographs and Appendix B has a copy of the EDR database search report.

1.2 PHASE I ESA PURPOSE

The purpose of the Phase I ESA is to gather and review historical and current land use information from various sources to identify RECs on or near the subject property. RECs can impact the value of the property and impact the cost and schedule for site redevelopment.

1.3 PHASE I ESA INVOLVED PARTIES

Mr. Jim Petrich of Integrus Architecture selected EHSI to conduct a Phase I ESA on the subject property. Integrus Architecture is working behalf of the Washington State Department of Corrections which is considering purchasing the subject property.

2 PHASE I ESA SCOPE OF WORK

The scope of services for the subject property Phase I ESA included the following subtasks:

- Review readily available source information regarding current uses of the property and its surroundings from Mason County Assessor records, and compile information obtained during interviews of local agencies.
- Review readily available source information with respect to the historical uses of the property including:
    - Historical aerial photographs from EDR aerial photo package (EDR 2011) and map websites;
    - Polk City Directories – Not available;
    - Historical Kroll and Sanborn Atlas Collections for Mason County, Washington from the Seattle Public Library;
- Review federal and state environmental database records for properties with known or suspected environmental liability from the EDR regulatory database records search report.
- Interview both past and present available subject property owners.
- Interview available neighboring property owners.
- Conduct a detailed visual site reconnaissance of the property and cursory reconnaissance of the immediate site vicinity to observe existing conditions.

- Evaluate whether environmental conditions exist that might result in on-site migration from off-site sources.
- Evaluate whether environmental conditions exist that might result in off-site migration of on-site contaminants (if any) by air emissions, groundwater, or other media.

The content of this report follows the 2005 Revised Version of the ASTM guidance on "Standard Practice for Environmental Site Assessment: Phase I Environmental Site Assessment Process" (Designation E 1527-05) and USEPA AAI Rule (40 CFR, Part 312). The contents of this report satisfy the agreed upon scope of services as defined by our October 10, 2010 proposal from EHSI to Arch Integrus and the above-cited ASTM Standard.

RECs are defined in ASTM Standard E 1527-05 (2005) as "the presence or likely presence of regulated hazardous or dangerous wastes and/or substances, including petroleum products, under conditions that indicate an existing release, a past release, or a material threat of a release into the structures of the property or into the ground, groundwater, or surface water of the property."

2.1 PROPERTY LEGAL DESCRIPTION

The Mason County parcel tax ID number for the subject property is 4200300000. The property legal description is as follows:

Section 3, Township 20N, Range 4W.

3 SITE OVERVIEW

The subject property includes approximately 25 acres set within an irregularly-shaped Mason County parcel covering a total of 497-acres of land. The subject property is currently vacant forested land (Figure 2).

3.1 ADJACENT PROPERTIES

To the northeast, two inset parcels are occupied by a single-family residence and Shelton Auto Wrecking. The parcel across West Dayton Airport Road contains the Mason County Landfill. The subject property is bounded on the east by a large forested parcel. Vacant forest land extends to the south with a Department of Corrections facility beyond.

4 PHYSICAL SETTING

The subject property is situated on slight southward sloping land at an elevation of 300 feet above mean sea level (Figure 1).

4.1 FLOOD PLAIN

The subject property is located outside of the US Federal Emergency Management Agency 100-year and 500-year flood zones.

4.2 SENSITIVE RECEPTORS

There are no documented sensitive receptors within a 1,000-foot radius of the subject property.

4.3 GEOLOGY

The dominant geological feature of the landscape in this portion of the Mason County is Vashon till (Pleistocene). The Vashon till is made up of predominantly fine-grained deposits

consisting of unsorted and unstratified glacial sediments from clay to boulder in size that vary in compaction and composition throughout the Puget Sound. The Vashon till is made up of both subglacial and ablation components. The subglacial consists of unsorted gravel in a matrix of sandy silt and clay, commonly called hardpan. The ablation is till, brown sandy and gravelly soil accompanied by a few boulders (Jones 1998).

4.4 SOILS

The soil type underlying the subject property is loamy sand regionally mapped as Lystair. This soil type has Class B, moderate infiltration characteristics typical of soils that consist predominately of well drained sandy loam soils.

4.5 SURFACE WATER AND WETLANDS

There are no documented wetlands within subject property. No surface water bodies exist within the subject property or on the adjacent properties.

4.6 WATER WELLS

There are six documented water supply wells within a 1/2- to 1-mile radius of the subject property.

4.7 GROUNDWATER

Hydrological conditions including rainfall amounts, nearby streams, or other surface bodies of water can provide pathways for the spread of contamination. Fate transport routes are those pathways which contamination would utilize to flow into a property. These routes are generally topographically controlled, but subsurface structure (faults); lithology (gravel, sands, or clays and their porosity and permeability) can also effect the migration of contamination. Often underground cables or storm sewer pipes act as conduits for contamination (depending on their proximity to the spill event).

Principal groundwater aquifers in the subject property area generally occur in perched recessional outwash deposits overlying glacial till and within advanced outwash sands and gravels underlying the till. Groundwater is reported in the vicinity of the subject property at a depth of approximately seven feet below ground surface. Based on surface topography, the likely direction of shallow groundwater flow beneath the subject property is interpreted to be south, following the site and surrounding area topographic slope.

4.8 POTABLE WATER SERVICES

The City of Shelton provides potable water service to the subject property.

4.9 SEWER

Sewer services for the vicinity of the subject property consist of on-site septic systems.

4.10 DITCH FEATURES

Stormwater ditches bound the subject property along its frontage with West Dayton Airport Road. No evidence of dumping or spillage was noted in this ditch.

4.11 STORMWATER SEWERS

No stormwater catch basins were observed on the subject property.

4.12 ELECTRICAL SUPPLY/TRANSFORMERS

Mason County PUD provides electrical services to the subject property. No main-service electrical transformers were observed on the subject property.

5 RESULTS OF THE SITE INVESTIGATION

5.1 SITE INSPECTION DATE

Personnel from EHSI inspected the subject property on June 7, 2011. No weather or access related limitations occurred during the inspection. Assessment for the presence of ACM, lead-based paint, and PCBs within light ballasts is beyond the scope of this Phase I ESA.

5.2 INTERIOR AREAS

There are no interior areas of the undeveloped subject property.

5.3 CHEMICAL STORAGE

No chemical storage was observed for the subject property.

5.4 RADON

The western region of the State of Washington is generally considered to have a relatively low potential for significant radon emissions. The US Environmental Protection Agency National Radon Database (EPA Radon Database) is a compilation of the EPA/State Residential Radon Survey and the National Radon Survey. The listed EPA Radon Database average indoor measurement readings for radon in this portion of Mason County, Washington (Zip Code 98584) ranged from 0.0 to 1.133 pCi/L. There were seven recorded measurements within the zip code and the readings averaged 1.133 pCi/L. Based on regional geologic conditions and published regional radon testing results, EHSI believes that there is a very low probability that radon emissions present a significant environmental issue at the subject property.

5.5 ABOVE GROUND STORAGE TANKS (ASTs)

The EHSI Inspector observed no current ASTs within the subject property.

5.6 UNDERGROUND STORAGE TANKS (USTs)

No currently known (documented or observed) fuel USTs appear to exist within the subject property. The EHSI field inspector did not observe any UST vents, fill ports, or any other apparatus commonly associated with USTs that would signify their current existence within the subject property.

We were advised by a representative of the Mason County Fire Marshal's office, Mr. Larry Waters, that they do not have records of UST installations or removals for the subject property.

5.7 GENERAL CONDITIONS OF EXTERIOR AREAS

The EHSI site inspector documented the exterior areas of the subject property to be in good condition. The subject property is currently covered with low pine trees and brush. ATV trails bisect the subject property. There was no observed chemical surface staining or evidence of chemical spill within the inspected exterior areas of the subject property (Appendix A, photographs 5 and 6).

5.8 CONTROLLED WASTE STORAGE AREA

No solid waste storage areas were observed on the subject property.

5.9 DISCOLORED SOILS OR STRESSED VEGETATION

During inspection, the EHSI inspector found no discolored soils or stressed vegetation within the subject property.

6 PHASE I ESA HISTORICAL RESEARCH

A property reconnaissance and review of available historical resources including aerial photographs, Sanborn fire insurance maps, and Kroll atlas collections were evaluated to assess for current and past land uses that may present potential environmental liabilities of the subject property.

6.1 AERIAL PHOTOGRAPHS

EHSI reviewed aerial photographs of the subject property and surrounding properties for the years 1951, 1957, 1968, 1973, 1980, 1990, and 2006.

The 1951 through 1973 aerial photographs show the subject property and surrounding land as undeveloped forest land. The existing road system is visible as well.

Clearing and grading for the existing auto wrecking yard is evident to the northeast. Earthwork for the existing landfill is visible to the west of the subject property.

By 1990, the existing auto wrecking yard appears in operation to the northeast of the subject property and an operational landfill is evident to the west.

In the 2006 aerial photo, the subject property remains as vacant forest land with ATV trails bisecting it. No changes to land use are noted for surrounding properties.

No evidence of landfills or large chemical storage facilities, such as bulk terminals, was found during review of the aerial photographs covering the subject property. Copies of the aerial photographs are contained in Appendix B.

6.2 SANBORN FIRE INSURANCE MAPS

No Sanborn fire insurance maps exist for the subject property (unmapped) and its environs (Appendix B).

6.3 KROLL ATLASES

A historical Kroll Atlas was reviewed for the year 1927. That atlas depicted Mason County Logging Company as the fee owner.

6.4 POLK CITY DIRECTORIES

Polk City Directories were not available for the vicinity of the subject property.

6.5 MASON CUONTY PERMIT REVIEW

EHSI reviewed the Mason County on-line building department for possible permits (e.g., environmental remediation, UST removal, hazardous material storage, Haz-Mat abatement, etc.) issued for the subject property. No relevant environmental permits were on file for the subject property.

6.6 HISTORICAL ASSESSOR TAX RECORDS

Historical tax assessor records were not publically available for the subject property.

6.7 FIRE DEPARTMENT

The Mason County Fire Marshal provides fire and chemical spill (Haz-Mat) protection services to the subject property. EHSI spoke with Mr. Larry Waters of the Mason County Fire Marshal's office on June 15, 2011. Mr. Waters related that there are no hazardous materials incident reports or UST permits on file for the subject property.

6.8 INTERVIEWS

As part of the Phase I ESA process, the EHSI Inspector conducted the following interviews:

Mr. David Kamin, the current subject property owner's representative. According to Mr. Kamin:

- He is unaware of any ASTs or USTs on the subject property;
- No filed or recorded environmental cleanup liens exist for the subject property;
- No filed and/or recorded activity or land use limitations are in place for the subject property;
- No chemical spills have taken place within or adjacent to the subject property;
- No environmental cleanups took place within the subject property.

6.9 INTERVIEW BONAFIDE PROSPECTIVE PURCHASER

At the present time, the subject property is not under a purchase agreement and there is no bonafide prospective purchaser.

6.10 TITLE DOCUMENTATION

EHSI was not provided a chain-of-title document for the subject property.

7 DATA GAPS

The absence of chain-of-title documentation presents a data gap for the subject property. This data gap is not expected to effect the conclusions of the Phase I report.

8 ENVIRONMENTAL ASSESSMENT RECORDS REVIEW

EHSI contracted EDR to carry out a review of various state and federal regulatory databases and records for the subject property. In addition, EDR searched for sites located within specific search distances listed in ASTM Standard E1527-05, Standard Practice for Environmental Assessment and the USEPA AAI Standard. The findings of the EDR Database Review are presented in the subsequent sections. A description of the databases searched and a copy of the EDR database search document are provided in Appendix B.

8.1 DATABASE SEARCH RESULTS

Table 1 provides a summary of the key Federal and State of Washington databases searched by EDR:

TABLE 1: REGULATORY DATABASE SOURCE LISTS

AGENCY	LIST ACRONYMS/ID[A]	DESCRIPTION	SEARCH RADIUS	NUMBER OF SITES LOCATED
USEPA	NPL	National Priority List	1 mile	0
USEPA	CORRACTS	RCRA Corrective Actions	1 mile	0
Ecology	HSL/SHWS	Hazardous Sites List/State Hazardous Waste Sites	1 mile	0
USEPA	CERCLIS/NFRAP	Sites Currently Under Review	½ mile	0
Ecology	CSCSL/CSCSL-NFA	Confirmed and Suspected Contaminated Sites List	½ mile	2
USEPA	TSD	Permitted RCRA Treatment, Storage, and Disposal Facilities	1 mile	0
Ecology	LUST	Leaking Underground Storage Tank Sites	½ mile	0
Ecology	ICR/VCP	Independent Cleanup Report/Voluntary Cleanup Program	½ mile	0
Ecology	SWLF	Permitted Solid Waste Landfills, Incinerators, or Transfer Stations	½ mile	3
Ecology	UST	Regulated Underground Storage Tanks	¼ mile	1
USEPA	RCRA-LQG	RCRA Registered Large Quantity Generators of Hazardous Waste	¼ mile	0
USEPA	RCRA-SQG	RCRA Registered Small Quantity Generators of Hazardous Waste	¼ mile	1
USEPA	RCRA-CESQG	RCRA Registered Conditionally Exempt Small Quantity Generators of Hazardous Waste	¼ mile	0
USEPA	ERNS	Emergency Response Notification Systems	Target Property	0
Ecology	SPILLS	Reported Spills	Target Property	0

RCRA = Resource Conservation and Recovery Act.
NFA = No Further Action.
Ecology = Washington State Department of Ecology.
[A]See EDR Report in Appendix B for definitions of database acronyms.

8.2 SUBJECT PROPERTY

The subject property is not listed on any federal or state regulatory environmental databases.

8.3 SURROUNDING PROPERTIES

A review of the EDR database search report, including sites listed in the orphan site summary identified two sites with either documented releases of hazardous materials or facilities that manage hazardous materials in significant quantities.

The closest listed facility, Shelton Auto Wrecking located at 1501 West Dayton Airport Road. Shelton Auto Wrecking is located adjacent and to the northeast of the subject property in an inferred up-gradient hydrologic position. The facility appears on the ALLSITES and Solid Waste Facility databases as a recycling business. No violations or reported releases are noted for this business. Based on no reported releases and/or violations, EHSI does not consider this adjacent and up-gradient facility as a potential source for a REC to the subject property.

The second evaluated site is Mason County Landfill, located at 501 West Eells Hill Road. The Mason County Landfill is located across Highway 112, to the west of the subject property in an up-gradient hydrologic position. The Mason County Landfill appears on the Landfill, CSCSL-NFA, and UST databases. Based on a determination of No Further Action (NFA) by the Washington State Department of Ecology (Ecology) Volunteer Cleanup Program (VCP), EHSI does not consider this Mason County Landfill as a potential source for a REC to the subject property.

The other listed facilities are located either down-gradient or greater than a 1/8 mile radius from the subject property and EHSI does not consider these properties as potential RECs to the subject property.

9 PHASE I ESA CONCLUSIONS

A review of historical information available revealed that the subject property has been vacant forest land since at least 1951. No environmental risks were identified for the subject property.

EHSI has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-05 of the subject property at 1100 West Dayton Airport Road, Shelton, Washington. Any exceptions to, or deletions from, this practice are described in Section 11 of this report. This assessment has revealed no evidence of RECs in connection with the property.

The ASTM Standard for Phase I Environmental Site Assessments specifically excludes the sampling and identification of ACM, lead-based paint, and PCBs-containing lighting ballasts. Therefore, this assessment did not include testing, verification, or identification of those potential environmental hazards.

10 RECOMMENDATIONS

Based on our research in conducting this Phase I ESA, we believe that a thorough analysis of potential environmental liabilities has been conducted in accordance to the ASTM Phase I ESA Standard (E 1527-05) and USEPA AAI Rule at the subject property. Considering the results of our Phase I research, no additional action appears warranted at this time.

11 DEVIATIONS

No site-specific conditions were encountered that required deviation from the scope of services addressed in Section 2.2 of this report.

12 REFERENCES

ASTM International. 2005. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. American Society for Testing and Materials. ASTM E 1527-05, 35p.

Ecology. 2004. Dangerous Waste Regulations – Chapter 173-303 WAC. Washington State Department of Ecology publication number 92-91.

Ecology. 2007. Model Toxics Control Act (MTCA) Cleanup Regulation—Chapter 173-340 WAC. Washington State Department of Ecology, Toxics Cleanup Program, Publication Number 94-06. Updated October 12, 2007.

Ecology. 2011. Washington State Department of Ecology Well Log Database. Visited Ecology website on May 31, 2011; http://apps.ecy.wa.gov/welllog/mapsearch/.

EDR. 2011a. EDR Radius Map™ Report with GeoCheck® for the subject property, 1100 West Dayton Airport Road, Shelton, Washington 98584. Environmental Data Resources, Inc., Inquiry No. 3074151.2s, May 19, 2011 (see Appendix B).

EDR. 2011b. EDR Aerial Photo Decade Package for the subject property, 1100 West Dayton Airport Road, Shelton, Washington 98584. Environmental Data Resources, Inc., Inquiry No. 3074151.2s, May 19, 2011.

EDR. 2011c. Certified Sanborn® Map Report for the subject property, 1100 West Dayton Airport Road, Shelton, Washington 98584. Environmental Data Resources, Inc., Inquiry No. 3074151.2s, May 19, 2011.

Kamin, David, telephone interview on June 20, 2011.

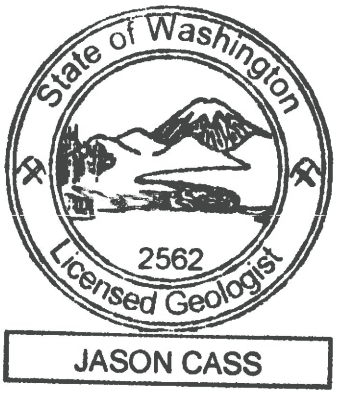
Google. 2011. 2011 aerial photograph covering the subject property and surrounding area. Visited Google Maps website on June 10, 2011.

Jones, M. A.; 1998, "Surficial Hydrogeologic Units of the Puget Sound Aquifer System, Washington"; United States Geological Survey Professional Paper 1424-C;

USGS. 1988. Shelton, Washington 7.5-minute topographic quadrangle map. U.S. Geological Survey, Denver, Colorado

13 SIGNATURE

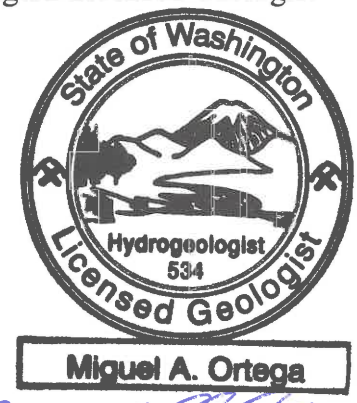
This Phase I ESA Final Report was prepared by the undersigned. I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of this part [40 CFR Part 312]. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.



Jason Cass 6/28/11

Jason Cass
Washington Licensed Geologist

Date



28 June 2011

Miguel Ortega
Washington Licensed Geologist

Date

14 LIMITATIONS

The conclusions presented in report are professional opinions based upon our visual observations and available public records. This report is intended exclusively for the purpose outlined herein, at the site location indicated. This report is for the sole use of our client, Integrus Architecture. Opinions and conclusions presented herein apply to site conditions existing at the time of execution of our Phase I Environmental Site Assessment and do not necessarily apply to future changes or other prior conditions at the site of which EHSI is not aware and has not had the opportunity to evaluate. The scope of services performed in execution of this Phase I Environmental Site Assessment may not be appropriate to satisfy the needs of other users, and any use or re-use of the document, its findings, conclusions, or recommendations presented are at the sole risk of the said user.

EHSI's objective is to perform our work with care, exercising the customary thoroughness and competence of environmental consulting professionals in the relevant disciplines. Furthermore, we carried out our services in accordance with the standard for professional services by a consulting firm at the time those services were rendered. It is important to recognize that even the most comprehensive scope of services may fail to detect environmental liability on a particular site. Therefore, EHSI cannot act as insurers and cannot "certify or underwrite" that a site is totally free of environmental liability. In addition, no expressed or implied representation or warranty is included or intended in our report except that our work was performed within the limits prescribed by our client, and with the customary thoroughness and competence of our profession.

FIGURES

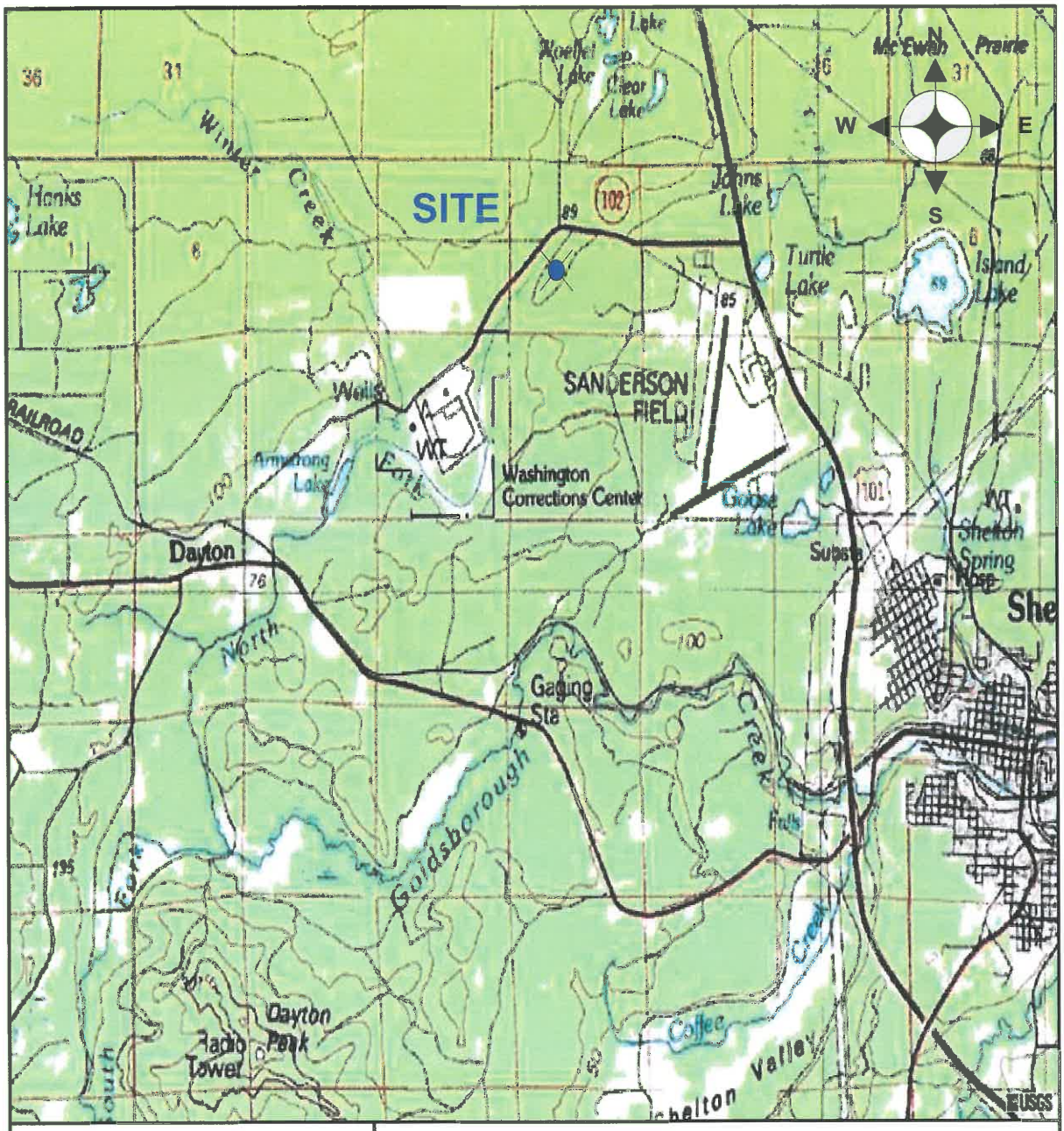
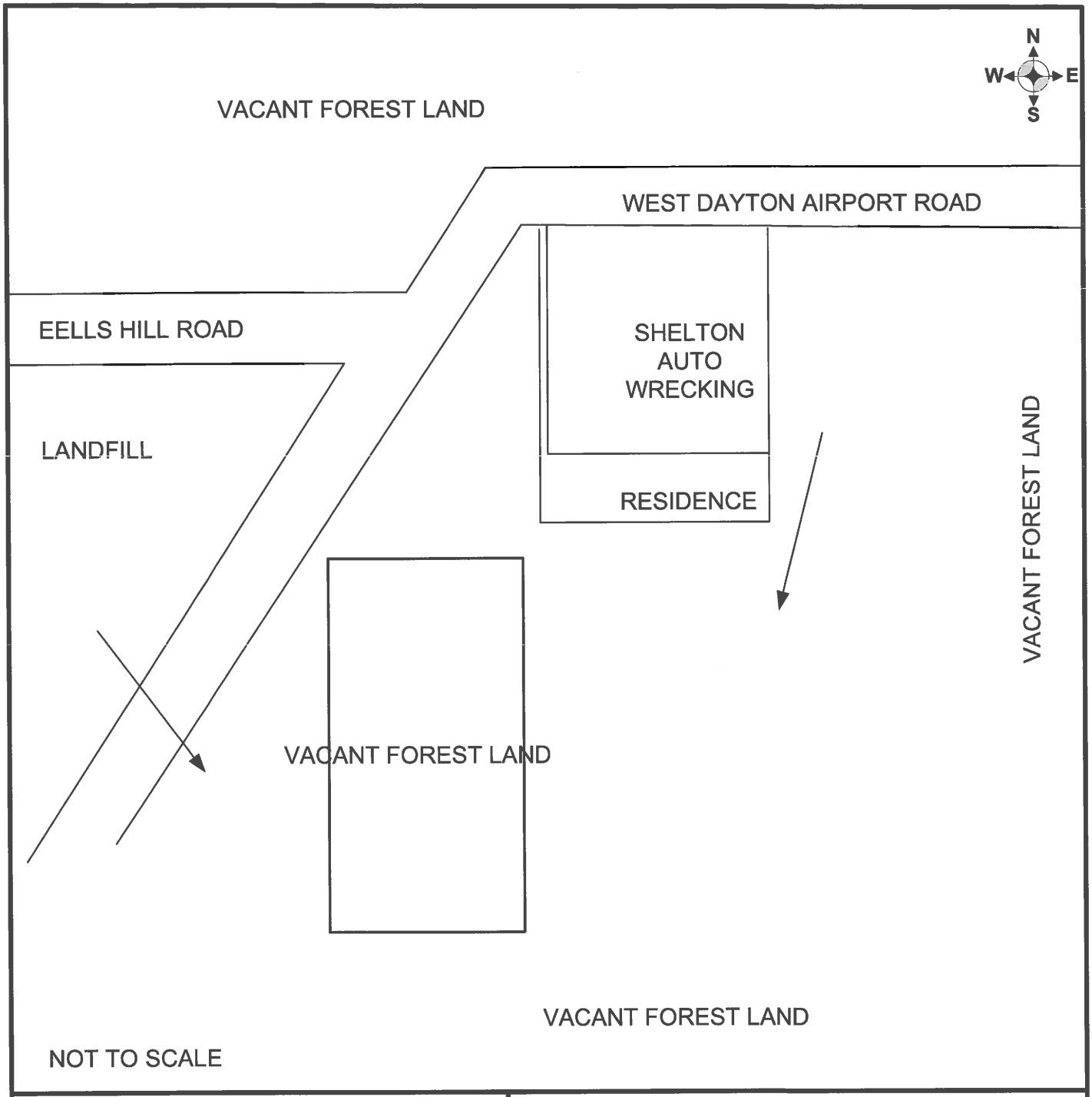


FIGURE 1
MASON SITE #1
PHASE I ENVIRONMENTAL SITE ASSESSMENT
WEST DAYTON AIRPORT ROAD
SHELTON, WASHINGTON 98584

SITE LOCATION MAP

Reference: US Geological Survey
Shelton, Washington
7.5 Minute Quadrangle
Photo revised 1988

EHS International, Inc.	June 2011



EXPLANATION

APPROXIMATE LIMITS OF SUBJECT PROPERTY

INFERRED GW FLOW DIRECTION

FIGURE 2

MASON SITE #1
PHASE I ENVIRONMENTAL SITE ASSESSMENT
WEST DAYTON AIRPORT ROAD
SHELTON, WASHINGTON 98584

SITE PLOT PLAN

EHS International, Inc.	June 2011

APPENDIX A: SITE PHOTOGRAPHS

Photograph 1: View of typical conditions across subject property.

Photograph 2: View of subject property looking toward the northeast.

Photograph 3: View of ATV trail bisecting subject property.

APPENDIX B: EDR DATABASE SEARCH DOCUMENT

Mason County Site
1100 West Dayton Airport Road
Shelton, WA 98584

Inquiry Number: 3074151.2s
May 19, 2011

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

1100 WEST DAYTON AIRPORT ROAD
SHELTON, WA 98584

COORDINATES

Latitude (North):	47.252100 - 47° 15' 7.6"
Longitude (West):	123.175100 - 123° 10' 30.4"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	486750.2
UTM Y (Meters):	5232976.0
Elevation:	298 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	47123-C2 SKOKOMISH VALLEY, WA
Most Recent Revision:	1986
South Map:	47123-B2 SHELTON VALLEY, WA
Most Recent Revision:	1981

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	2005, 2006
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List

EXECUTIVE SUMMARY

Proposed NPL ..... Proposed National Priority List Sites
NPL LIENS ..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ..... National Priority List Deletions

Federal CERCLIS list

CERCLIS ..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-SQG ..... RCRA - Small Quantity Generators
RCRA-CESQG ..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls

Federal ERNS list

ERNS ..... Emergency Response Notification System

State- and tribal - equivalent NPL

HSL ..... Hazardous Sites List

State and tribal leaking storage tank lists

LUST ..... Leaking Underground Storage Tanks Site List
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

AST ..... Aboveground Storage Tank Locations
INDIAN UST ..... Underground Storage Tanks on Indian Land
FEMA UST ..... Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

INST CONTROL ..... Institutional Control Site List

EXECUTIVE SUMMARY

State and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing
VCP ..... Voluntary Cleanup Program Sites
ICR ..... Independent Cleanup Reports

State and tribal Brownfields sites

BROWNFIELDS ..... Brownfields Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
ODI ..... Open Dump Inventory
SWTIRE ..... Solid Waste Tire Facilities
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL ..... Clandestine Drug Labs
CDL ..... Clandestine Drug Lab Contaminated Site List
HIST CDL ..... List of Sites Contaminated by Clandestine Drug Labs
US HIST CDL ..... National Clandestine Laboratory Register

Local Land Records

LIENS 2 ..... CERCLA Lien Information
LUCIS ..... Land Use Control Information System

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System
SPILLS ..... Reported Spills

Other Ascertainable Records

RCRA-NonGen ..... RCRA - Non Generators
DOT OPS ..... Incident and Accident Data
DOD ..... Department of Defense Sites
FUDS ..... Formerly Used Defense Sites
CONSENT ..... Superfund (CERCLA) Consent Decrees
ROD ..... Records Of Decision
UMTRA ..... Uranium Mill Tailings Sites
MINES ..... Mines Master Index File
TRIS ..... Toxic Chemical Release Inventory System
TSCA ..... Toxic Substances Control Act
FTTS ..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

HIST FTTS..... FIFRA/TSCA Tracking System Administrative Case Listing
SSTS..... Section 7 Tracking Systems
ICIS..... Integrated Compliance Information System
PADS..... PCB Activity Database System
MLTS..... Material Licensing Tracking System
RADINFO..... Radiation Information Database
FINDS..... Facility Index System/Facility Registry System
RAATS..... RCRA Administrative Action Tracking System
UIC..... Underground Injection Wells Listing
MANIFEST..... Hazardous Waste Manifest Data
DRYCLEANERS..... Drycleaner List
NPDES..... Water Quality Permit System Data
AIRS..... Washington Emissions Data System
Inactive Drycleaners..... Inactive Drycleaners
INDIAN RESERV..... Indian Reservations
SCRD DRYCLEANERS..... State Coalition for Remediation of Drycleaners Listing
FINANCIAL ASSURANCE..... Financial Assurance Information Listing
COAL ASH..... Coal Ash Disposal Site Listing
COAL ASH DOE..... Sleam-Electric Plan Operation Data
COAL ASH EPA..... Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER..... PCB Transformer Registration Database

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants..... EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent CERCLIS

CSCSL: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Ecology's Confirmed & Suspected Contaminated Sites List.

A review of the CSCSL list, as provided by EDR, and dated 04/26/2011 has revealed that there are 2

CSCSL sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WASHINGTON CORRECTIONS CENTER	***W 2321 DAYTON AIRPORT R***	***SW 1/2 - 1 (0.805 mi.)***	***B6***	***13***
WA STATE DOC	***2321 DAYTON AIRPORT RD***	***SW 1/2 - 1 (0.805 mi.)***	***B7***	***26***

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Department of Ecology's Solid Waste Facilities Handbook.

A review of the SWF/LF list, as provided by EDR, and dated 12/14/2010 has revealed that there are 3 SWF/LF sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SHELTON AUTO WRECKING	***1501 W DAYTON AIRPORT R***	***NW 0 - 1/8 (0.080 mi.)***	***1***	***7***
MASON COUNTY TRANSFER STATION	W 501 EELLS HILL RD	W 1/8 - 1/4 (0.139 mi.)	A2	8
MASON COUNTY HHW FACILITY	W. 501 EELLS HILL ROAD	W 1/8 - 1/4 (0.139 mi.)	A4	10

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Ecology's Statewide UST Site/Tank Report.

A review of the UST list, as provided by EDR, and dated 02/23/2011 has revealed that there is 1 UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MASON COUNTY LANDFILL	501 W EELLS HILL RD	W 1/8 - 1/4 (0.139 mi.)	A3	8

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

ALLSITES: Information on facilities and sites of interest to the Department of Ecology.

A review of the ALLSITES list, as provided by EDR, and dated 02/08/2011 has revealed that there are 2 ALLSITES sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SHELTON AUTO WRECKING	***1501 W DAYTON AIRPORT R***	***NW 0 - 1/8 (0.080 mi.)***	***1***	***7***
MASON COUNTY LANDFILL	***501 W EELLS HILL RD***	***W 1/8 - 1/4 (0.139 mi.)***	***A5***	***11***

EXECUTIVE SUMMARY

CSCSL NFA: The data set contains information about sites previously on the Confirmed and Suspected Contaminated Sites list that have received a No Further Action (NFA) determination. Because it is necessary to maintain historical records of sites that have been investigated and cleaned up, sites are not deleted from the database when cleanup activities are completed. Instead a No Further Action code is entered based upon the type of NFA determination the site received.

A review of the CSCSL NFA list, as provided by EDR, and dated 04/26/2011 has revealed that there is 1 CSCSL NFA site within approximately 0.5 miles of the target property.

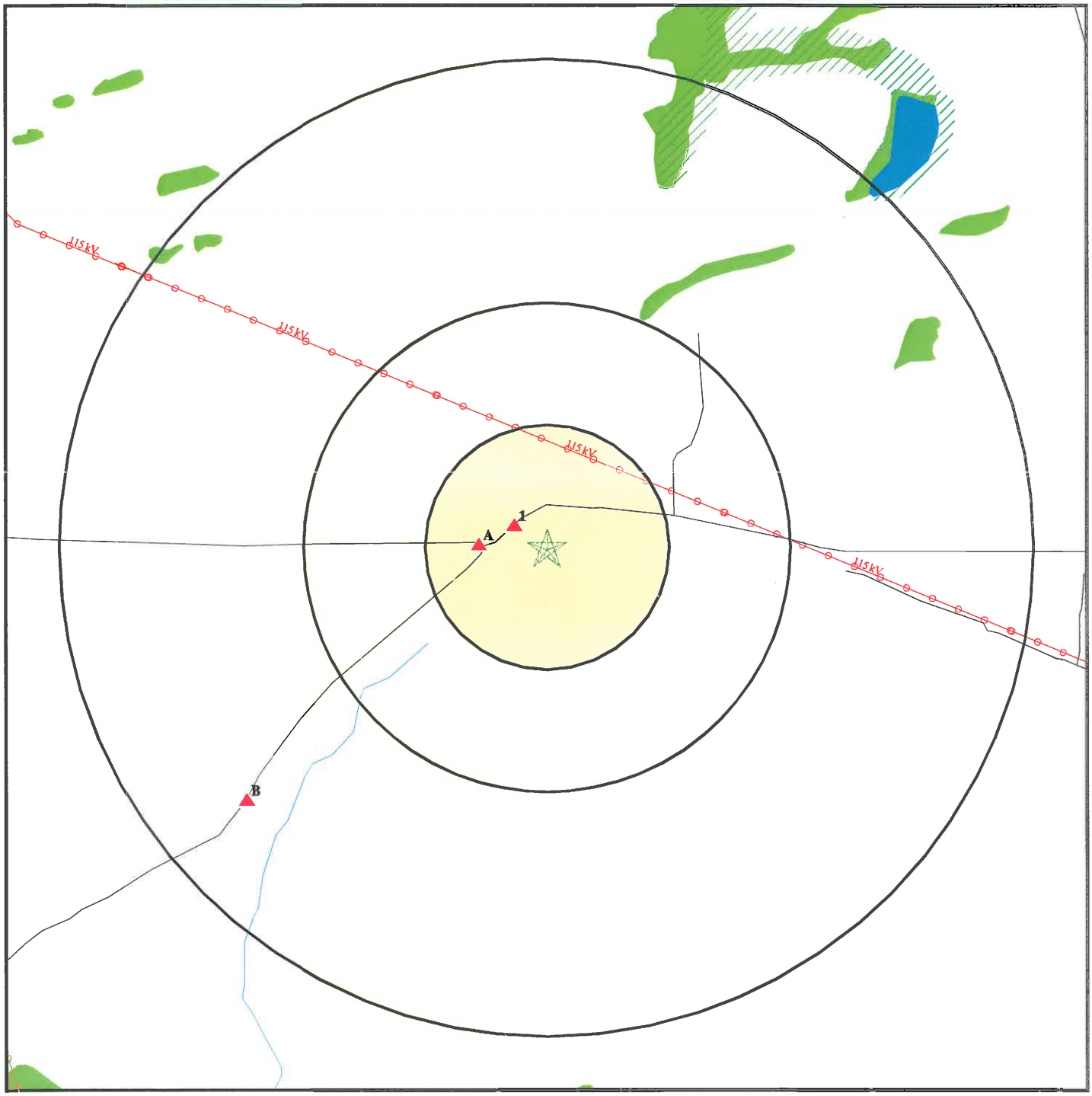
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MASON COUNTY LANDFILL	*501 W EELLS HILL RD*	*W 1/8 - 1/4 (0.139 mi.)*	*A5*	*11*

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 41 records.

Site Name	Database(s)
PUBLIC UTILITY DIST 3 MASON COUNTY	FINDS,HWS,ALLSITES,UST
TACOMA PUBLIC UTILITIES CUSHMAN DA	FINDS,ALLSITES,RCRA-CESQG,MANIFEST
WA PARKS POTLATCH STATE PARK	FINDS,ALLSITES,UST
TIME OIL CO 01 366	FINDS,ALLSITES
FERRELLGAS HOODSPORT	FINDS,ALLSITES
SHELTON FLIGHT INC	FINDS,UST,ALLSITES
MASON COUNTY PUD 1	CSCSL NFA,VCP,ALLSITES
KENS AUTO BODY REPAIR	FINDS,ALLSITES,RCRA-NLR
BAYSHORE S&G	FINDS,ALLSITES
JOHN PRAIRIE SITE	FINDS,ALLSITES
SKOOKUM LUMBER PLANT	FINDS,UST,MANIFEST,ALLSITES
SMITH TOWING	FINDS,ALLSITES
BAYSHORE GOLF COURSE	ALLSITES
MASON COUNTY PUD #3	FTTS,HIST FTTS INSP
SIMPSON TIMBER CO DAYTON SORT YARD	FINDS,LUST NORTHWEST REGION
SKOOKUM LUMBER PLANT	RCRA-LQG
CHARLES BELANDER TOWING	RCRA-NLR
MASON COUNTY LANDFILL	FINDS,RCRA-NLR
MASON CNTY PUD NO 1	PADS
MASON COUNTY PUD 1 UST 2713	FINDS
MASON CNTY PW KENNEDY CREEK QUARRY	FINDS
MASON CNTY PW CENTER ISLAND SITE	FINDS
MASON CNTY PW ISABELLA LAKE STCKPL	FINDS,NPDES
MASON COUNTY LANDFILL	FINDS
MASON GENERAL HOSPITAL, 901 MTN. V	FINDS
MASON CNTY PW LAKE LIMERICK N ENTR	FINDS
MASON CNTY PW MASON LK RD PIT	FINDS
MASON CNTY PW PICKERING RD	FINDS
MASON COUNTY PUBLIC WORKS DR	FINDS
MASON CNTY CENTRAL SHOP SHELTON	FINDS
MASON CNTY PW TRAILS RD STOCKPILE	FINDS
PLANT SITE	FINDS
MASON COUNTY GARBAGE & RECYCLING	FINDS
21971 HWY 101 HOODSPORT	ICR
C & J'S GROCERY	ICR
CHEVRON #9 2553	ICR
POTLATCH JACKPOT	INDIAN UST R4
CUSHMAN NO. 2	INDIAN UST R4
TWIN TOTEMS GROCERY-GAS-DELI	INDIAN UST R4
KAMILCHE TRADING POST	INDIAN UST R4
POTLATCH JACKPOT	INDIAN LUST R5

OVERVIEW MAP - 3074151.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites

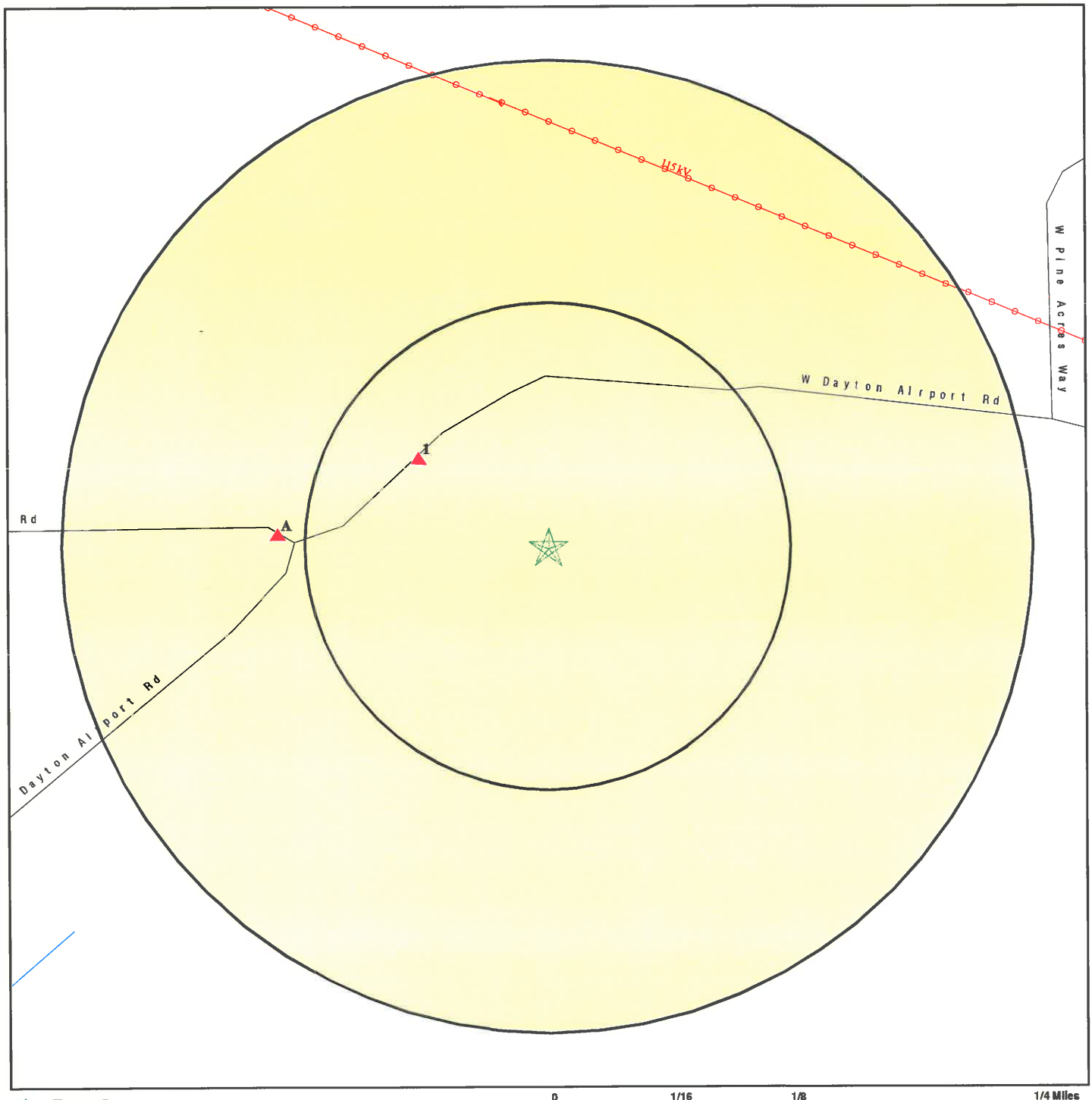
0 1/4 1/2 1 Miles

- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Mason County Site ADDRESS: 1100 West Dayton Airport Road Shelton WA 98584 LAT/LONG: 47.2521 / 123.1751	CLIENT: EHS International, Inc. CONTACT: Jason Cass INQUIRY #: 3074151.2s DATE: May 19, 2011 6:58 pm

DETAIL MAP - 3074151.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone

0 1/16 1/8 1/4 Miles

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Mason County Site	CLIENT: EHS International, Inc.
ADDRESS: 1100 West Dayton Airport Road Shelton WA 98584	CONTACT: Jason Cass
LAT/LONG: 47.2521 / 123.1751	INQUIRY #: 3074151.2s DATE: May 19, 2011 6:59 pm

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL		1.000	0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS		0.500	0	0	0	NR	NR	0
FEDERAL FACILITY		1.000	0	0	0	0	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP		0.500	0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS		1.000	0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF		0.500	0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG		0.250	0	0	NR	NR	NR	0
RCRA-SQG		0.250	0	0	NR	NR	NR	0
RCRA-CESQG		0.250	0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
Federal ERNS list								
ERNS		TP	NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
HSL		1.000	0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
CSCSL		1.000	0	0	0	2	NR	2
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF		0.500	1	2	0	NR	NR	3
State and tribal leaking storage tank lists								
LUST		0.500	0	0	0	NR	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
State and tribal registered storage tank lists								
UST		0.250	0	1	NR	NR	NR	1
AST		0.250	0	0	NR	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
FEMA UST		0.250	0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
INST CONTROL		0.500	0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
ICR		0.500	0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS		0.500	0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
SWTIRE		0.500	0	0	0	NR	NR	0
INDIAN ODI		0.500	0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL		TP	NR	NR	NR	NR	NR	0
ALLSITES		0.500	1	1	0	NR	NR	2
CSCSL NFA		0.500	0	1	0	NR	NR	1
CDL		TP	NR	NR	NR	NR	NR	0
HIST CDL		TP	NR	NR	NR	NR	NR	0
US HIST CDL		TP	NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2		TP	NR	NR	NR	NR	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS		TP	NR	NR	NR	NR	NR	0
SPILLS		TP	NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA-NonGen		0.250	0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DOT OPS		TP	NR	NR	NR	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
UIC		TP	NR	NR	NR	NR	NR	0
MANIFEST		0.250	0	0	NR	NR	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
NPDES		TP	NR	NR	NR	NR	NR	0
AIRS		TP	NR	NR	NR	NR	NR	0
Inactive Drycleaners		0.250	0	0	NR	NR	NR	0
INDIAN RESERV		1.000	0	0	0	0	NR	0
SCRD DRYCLEANERS		0.500	0	0	0	NR	NR	0
FINANCIAL ASSURANCE		TP	NR	NR	NR	NR	NR	0
COAL ASH		0.500	0	0	0	NR	NR	0
COAL ASH DOE		TP	NR	NR	NR	NR	NR	0
COAL ASH EPA		0.500	0	0	0	NR	NR	0
PCB TRANSFORMER		TP	NR	NR	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
EDR Proprietary Records								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
NW
< 1/8
0.080 mi.
424 ft.

SHELTON AUTO WRECKING
1501 W DAYTON AIRPORT RD
SHELTON, WA 98584

ALLSITES **S108108248**
SWF/LF **N/A**

Relative:
Higher

Actual:
303 ft.

ALLSITES:

Facility Id:	7108741
Latitude:	47.251026406605398
Longitude:	-123.180300210759
Geographic location identifier (alias facid):	7108741
Facility Name:	Shelton Auto Wrecking
Latitude Decimal Degrees:	47.251026406599998
Longitude Decimal Degrees:	-123.180300211
Coordinate Point Areal Extent Code:	99
Horizontal Accuracy Code:	99
Coordinate Point Geographic Position Code:	99
Location Verified Code:	N

Geographic Location Identifier (Alias Facid):	7108741
Interaction (Aka Env Int) Type Code:	RSVP
Interaction (Aka Env Int) Description:	Revised Site Visit Program
Interaction Status:	A
Federal Program Indentifier:	Not reported
Interaction Start Date:	7/16/2008
Interaction End Date:	Not reported
prgm_facil:	SHELTON AUTO PARTS
cur_sys_pr:	HAZWASTE
cur_sys_nm:	RSVP

Geographic Location Identifier (Alias Facid):	7108741
Interaction (Aka Env Int) Type Code:	RECOVERY
Interaction (Aka Env Int) Description:	Energy Recovery
Interaction Status:	A
Federal Program Indentifier:	Not reported
Interaction Start Date:	1/1/1900
Interaction End Date:	Not reported
prgm_facil:	Shelton Auto Wrecking
cur_sys_pr:	W2R
cur_sys_nm:	SWFD

SWF/LF:

Facility ID:	1095
Region:	STATE
Permit Status:	EXEMPT
Date Closed:	Not reported
Contact Organization:	SHELTON AUTO WRECKING
Contact Address1:	1501 W DAYTON AIRPORT RD
Contact Address2:	Not reported
Contact City:	SHELTON
Contact State:	WA
Contact Postal:	98584
Contact EMail:	Not reported
Contact Phone:	360-427-5150
Contact Phone Ext:	Not reported
Permit No:	Not reported
Phone:	360-427-5150
Operator Name:	Not reported

SHELTON AUTO WRECKING (Continued) **S108108248**

Operator Organization:	Not reported
EMail:	Not reported
Recycle Survey Code:	7226
Ownership:	PRIVATE
Type:	RECYCLE FACILITY
Contact Name:	Not reported
Contact Title:	Not reported
Activity1:	MATERIAL RECOVERY FACILITY (EXEMPT)

A2 **MASON COUNTY TRANSFER STATION** **SWF/LF** **S108107742**
West **W 501 EELLS HILL RD** **N/A**
1/8-1/4 **SHELTON, WA 98584**
0.139 mi.
735 ft. **Site 1 of 4 in cluster A**

Relative:
Higher

Actual:
304 ft.

SWF/LF:

Facility ID:	485
Region:	STATE
Permit Status:	ACTIVE
Date Closed:	Not reported
Contact Organization:	MASON COUNTY UTILITIES & WASTE MANAGEMENT
Contact Address1:	MASON COUNTY BUILDING II
Contact Address2:	410 N. FOURTH, PO BOX 578
Contact City:	SHELTON
Contact State:	WA
Contact Postal:	98584
Contact EMail:	DAVIDB@CO.MASON.WA.US
Contact Phone:	360-427-7771
Contact Phone Ext:	Not reported
Permit No:	SWF-02
Phone:	(360) 427-5271
Operator Name:	Not reported
Operator Organization:	Not reported
EMail:	davidb@co.mason.wa.us
Recycle Survey Code:	Not reported
Ownership:	PUBLIC
Type:	TRANSFER STATION
Contact Name:	DAVID BAKER
Contact Title:	PROGRAM MANAGER II
Activity1:	TRANSFER STATION

A3 **MASON COUNTY LANDFILL** **UST** **U004040585**
West **501 W EELLS HILL RD** **N/A**
1/8-1/4 **SHELTON, WA 98584**
0.139 mi.
735 ft. **Site 2 of 4 in cluster A**

Relative:
Higher

Actual:
304 ft.

UST:

Facility ID:	1183
Site ID:	5700
Lat Deg:	47
Lat Min:	15
Lat Sec:	2.98800000000199
Long Deg:	-123
Long Min:	11
Long Sec:	14.9279999999771

MASON COUNTY LANDFILL (Continued) **U004040585**

UBI:	Not reported
Phone Number:	2064265593

Tank ID:	11231
Tank Name:	(G)
Install Date:	12/31/1964
Capacity:	111 TO 1,100 Gallons
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

Tank ID:	4771
Tank Name:	(U-O)
Install Date:	12/31/1964
Capacity:	111 TO 1,100 Gallons
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Exempt
TankSystem Status Change Date:	8/26/1996
Tank Status:	Exempt
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Above Ground Piping
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported

MASON COUNTY LANDFILL (Continued) **U004040585**

Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported
Tank ID:	6071
Tank Name:	(D)
Install Date:	12/31/1964
Capacity:	Not reported
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

A4 **MASON COUNTY HHW FACILITY** **SWF/LF** **S108107961**
West **W. 501 EELLS HILL ROAD** **N/A**
1/8-1/4 **SHELTON, WA 98584**
0.139 mi.
735 ft. **Site 3 of 4 in cluster A**

Relative:
Higher

Actual:
304 ft.

SWF/LF:

Facility ID:	772
Region:	STATE
Permit Status:	ACTIVE
Date Closed:	Not reported
Contact Organization:	MASON COUNTY UTILITIES & WASTE MANAGEMENT
Contact Address1:	MASON COUNTY BUILDING II
Contact Address2:	410 N. FOURTH, PO BOX 578
Contact City:	SHELTON
Contact State:	WA
Contact Postal:	98584
Contact EMail:	DAVIDB@CO.MASON.WA.US
Contact Phone:	360-427-7771
Contact Phone Ext:	Not reported
Permit No:	SWF-02
Phone:	(360) 427-5271
Operator Name:	Not reported
Operator Organization:	Not reported
EMail:	davidb@co.mason.wa.us
Recycle Survey Code:	Not reported

MASON COUNTY HHW FACILITY (Continued) **S108107961**

Ownership: PRIVATE
Type: MRW FIXED
Contact Name: DAVID BAKER
Contact Title: PROGRAM MANAGER II
Activity1: MODERATE RISK WASTE FACILITY

A5 West 1/8-1/4 0.139 mi. 735 ft. **MASON COUNTY LANDFILL** **FINDS 1007080848**
501 W EELLS HILL RD **ALLSITES N/A**
SHELTON, WA 98584 **CSCSL NFA**

Site 4 of 4 in cluster A

Relative: Higher

Actual: 304 ft.

FINDS:

Registry ID: 110015575714

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

ALLSITES:

Facility Id: 1183
Latitude: 47.250830000000001
Longitude: -123.18747999999999
Geographic location identifier (alias facid): 1183
Facility Name: MASON COUNTY LANDFILL
Latitude Decimal Degrees: 47.250830000000001
Longitude Decimal Degrees: -123.18747999999999
Coordinate Point Areal Extent Code: 99
Horizontal Accuracy Code: 4
Coordinate Point Geographic Position Code: 99
Location Verified Code: Y

Geographic Location Identifier (Alias Facid): 1183
Interaction (Aka Env Int) Type Code: SCS
Interaction (Aka Env Int) Description: State Cleanup Site
Interaction Status: I
Federal Program Indentifier: Not reported
Interaction Start Date: 3/1/1988
Interaction End Date: 2/20/2005
prgm_facil: MASON COUNTY LANDFILL
cur_sys_pr: TOXICS
cur_sys_nm: ISIS

Geographic Location Identifier (Alias Facid): 1183
Interaction (Aka Env Int) Type Code: UST
Interaction (Aka Env Int) Description: Underground Storage Tank
Interaction Status: I
Federal Program Indentifier: 5700
Interaction Start Date: 6/8/1998
Interaction End Date: 3/22/2000
prgm_facil: Not reported

MASON COUNTY LANDFILL (Continued) **1007080848**

cur_sys_pr:	TOXICS
cur_sys_nm:	ISIS
Geographic Location Identifier (Alias Facid):	1183
Interaction (Aka Env Int) Type Code:	MRW
Interaction (Aka Env Int) Description:	Moderate Risk Waste
Interaction Status:	A
Federal Program Indentifier:	Not reported
Interaction Start Date:	1/1/1900
Interaction End Date:	Not reported
prgm_facil:	Mason County HHW Facility
cur_sys_pr:	W2R
cur_sys_nm:	SWFD
Geographic Location Identifier (Alias Facid):	1183
Interaction (Aka Env Int) Type Code:	STRHAND
Interaction (Aka Env Int) Description:	Storage & Handling
Interaction Status:	A
Federal Program Indentifier:	Not reported
Interaction Start Date:	1/1/1900
Interaction End Date:	Not reported
prgm_facil:	Mason County Transfer Station
cur_sys_pr:	W2R
cur_sys_nm:	SWFD
Geographic Location Identifier (Alias Facid):	1183
Interaction (Aka Env Int) Type Code:	RECYCLE
Interaction (Aka Env Int) Description:	Recycling
Interaction Status:	A
Federal Program Indentifier:	Not reported
Interaction Start Date:	1/1/1900
Interaction End Date:	Not reported
prgm_facil:	Mason County Used Oil Collections
cur_sys_pr:	W2R
cur_sys_nm:	SWFD
Geographic Location Identifier (Alias Facid):	1183
Interaction (Aka Env Int) Type Code:	LANDFILL
Interaction (Aka Env Int) Description:	Landfill
Interaction Status:	I
Federal Program Indentifier:	Not reported
Interaction Start Date:	1/2/1900
Interaction End Date:	9/1/1993
prgm_facil:	Mason County Munincipal Landfill
cur_sys_pr:	W2R
cur_sys_nm:	SWFD
Geographic Location Identifier (Alias Facid):	1183
Interaction (Aka Env Int) Type Code:	INDUSTIP
Interaction (Aka Env Int) Description:	Industrial IP
Interaction Status:	A
Federal Program Indentifier:	ST0007359
Interaction Start Date:	7/20/1994
Interaction End Date:	Not reported
prgm_facil:	MASON CNTY COMMUNITY DEV
cur_sys_pr:	WATQUAL
cur_sys_nm:	PARIS

MASON COUNTY LANDFILL (Continued) **1007080848**

CSCSL NFA:
Facility/Site Id: 1183
CS Id: 2536
NFA Type: NFA-SHA
NFA Date: 2005-02-20
Rank: Not reported

B6
SW
1/2-1
0.805 mi.
4248 ft.

WASHINGTON CORRECTIONS CENTER
W 2321 DAYTON AIRPORT RD
SHELTON, WA 98584

Site 1 of 2 in cluster B

CSCSL U003353250
ALLSITES N/A
LUST
UST
ICR

Relative:
Higher

Actual:
301 ft.

CSCSL:
Facility ID: 24576917
Region: Southwest
Lat/Long: 47.246319999999 / -123.18733
Brownfield Status: Not reported
Rank Status: Not reported
Clean Up Siteid: 8434
Site Status: Cleanup Started
PSI?: Not reported
Contaminant Name: Petroleum-Other
Ground Water: Not reported
Surface Water: Not reported
Soil: C
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Southwest

ALLSITES:
Facility Id: 24576917
Latitude: 47.246319999999997
Longitude: -123.18733
Geographic location identifier (alias facid): 24576917
Facility Name: WASHINGTON CORRECTIONS CENTER
Latitude Decimal Degrees: 47.246319999999997
Longitude Decimal Degrees: -123.18733
Coordinate Point Areal Extent Code: 99
Horizontal Accuracy Code: 99
Coordinate Point Geographic Position Code: 99
Location Verified Code: N

Geographic Location Identifier (Alias Facid): 24576917
Interaction (Aka Env Int) Type Code: LUST
Interaction (Aka Env Int) Description: LUST Facility
Interaction Status: I
Federal Program Indentifier: 11488
Interaction Start Date: 10/5/1993
Interaction End Date: 10/5/1993
prgm_facil: Not reported
cur_sys_pr: TOXICS
cur_sys_nm: ISIS

Geographic Location Identifier (Alias Facid): 24576917
Interaction (Aka Env Int) Type Code: TIER2

WASHINGTON CORRECTIONS CENTER (Continued) **U003353250**

Interaction (Aka Env Int) Description:	Emergency/Haz Chem Rpt TIER2
Interaction Status:	A
Federal Program Indentifier:	WAD039737416
Interaction Start Date:	1/1/1997
Interaction End Date:	Not reported
prgm_facil:	Not reported
cur_sys_pr:	HAZWASTE
cur_sys_nm:	EPCRA
Geographic Location Identifier (Alias Facid):	24576917
Interaction (Aka Env Int) Type Code:	MUNIIP
Interaction (Aka Env Int) Description:	Municipal IP
Interaction Status:	I
Federal Program Indentifier:	ST0005043
Interaction Start Date:	1/25/1977
Interaction End Date:	12/3/2009
prgm_facil:	WASHINGTON CORRECTIONS CENTER
cur_sys_pr:	WATQUAL
cur_sys_nm:	PARIS
Geographic Location Identifier (Alias Facid):	24576917
Interaction (Aka Env Int) Type Code:	HWG
Interaction (Aka Env Int) Description:	Hazardous Waste Generator
Interaction Status:	A
Federal Program Indentifier:	WAD039737416
Interaction Start Date:	12/31/2005
Interaction End Date:	Not reported
prgm_facil:	Not reported
cur_sys_pr:	HAZWASTE
cur_sys_nm:	TURBOWASTE
Geographic Location Identifier (Alias Facid):	24576917
Interaction (Aka Env Int) Type Code:	HWOTHER
Interaction (Aka Env Int) Description:	Haz Waste Management Activity
Interaction Status:	A
Federal Program Indentifier:	WAD039737416
Interaction Start Date:	12/31/2008
Interaction End Date:	Not reported
prgm_facil:	WASHINGTON CORRECTIONS CENTER
cur_sys_pr:	HAZWASTE
cur_sys_nm:	TURBOWASTE
Geographic Location Identifier (Alias Facid):	24576917
Interaction (Aka Env Int) Type Code:	UST
Interaction (Aka Env Int) Description:	Underground Storage Tank
Interaction Status:	I
Federal Program Indentifier:	11488
Interaction Start Date:	3/20/2000
Interaction End Date:	1/31/2005
prgm_facil:	Not reported
cur_sys_pr:	TOXICS
cur_sys_nm:	ISIS
Geographic Location Identifier (Alias Facid):	24576917
Interaction (Aka Env Int) Type Code:	BIOSOLID
Interaction (Aka Env Int) Description:	Biosolids
Interaction Status:	A

WASHINGTON CORRECTIONS CENTER (Continued) **U003353250**

Federal Program Indentifier:	Not reported
Interaction Start Date:	1/1/1900
Interaction End Date:	Not reported
prgm_facil:	WASHINGTON CORRECTIONS CENTER
cur_sys_pr:	W2R
cur_sys_nm:	SWFD
Geographic Location Identifier (Alias Facid):	24576917
Interaction (Aka Env Int) Type Code:	AQLA
Interaction (Aka Env Int) Description:	Air Qual Local Authority Reg
Interaction Status:	A
Federal Program Indentifier:	F_045_0007
Interaction Start Date:	1/1/2007
Interaction End Date:	Not reported
prgm_facil:	WASHINGTON CORRECTIONS CENTER
cur_sys_pr:	AIRQUAL
cur_sys_nm:	AIRSIS
Geographic Location Identifier (Alias Facid):	24576917
Interaction (Aka Env Int) Type Code:	HWOTHER
Interaction (Aka Env Int) Description:	Haz Waste Management Activity
Interaction Status:	I
Federal Program Indentifier:	WAD039737416
Interaction Start Date:	12/31/2003
Interaction End Date:	12/31/2005
prgm_facil:	Not reported
cur_sys_pr:	HAZWASTE
cur_sys_nm:	TURBOWASTE
Geographic Location Identifier (Alias Facid):	24576917
Interaction (Aka Env Int) Type Code:	HWG
Interaction (Aka Env Int) Description:	Hazardous Waste Generator
Interaction Status:	I
Federal Program Indentifier:	WAD039737416
Interaction Start Date:	7/1/1986
Interaction End Date:	12/31/2009
prgm_facil:	WASHINGTON CORRECTIONS CENTER
cur_sys_pr:	HAZWASTE
cur_sys_nm:	TURBOWASTE

LUST:

edr_fstat:	WA
edr_fzip:	985840974
edr_fcnty:	MASON
edr_zip:	Not reported
FS ID:	24576917
Facility ID:	11488
Facility Status:	Cleanup Started
Release ID:	4723
Affected Media:	Soil
Alternate Name:	WASHINGTON CORRECTIONS CENTER
Release Notification Date:	10/5/1993
Release Status Date:	10/5/1993
Site Response Unit Code:	SOUTHWEST
Lat/Long:	47.24632 / -123.18733

WASHINGTON CORRECTIONS CENTER (Continued) **U003353250**

edr_fstat: WA
edr_fzip: 985840974
edr_fcnty: MASON
edr_zip: Not reported
FS ID: 24576917
Facility ID: 11488
Facility Status: Reported Cleaned Up
Release ID: 4723
Affected Media: Soil
Alternate Name: WASHINGTON CORRECTIONS CENTER
Release Notification Date: 10/5/1993
Release Status Date: 8/9/1993
Site Response Unit Code: SOUTHWEST
Lat/Long: 47.24632 / -123.18733

UST:
Facility ID: 24576917
Site ID: 11488
Lat Deg: 47
Lat Min: 14
Lat Sec: 46.7519999999899
Long Deg: -123
Long Min: 11
Long Sec: 14.3880000000104
UBI: Not reported
Phone Number: 2064264433

Tank ID: 11698
Tank Name: GEN CEDAR
Install Date: 12/31/1964
Capacity: 111 TO 1,100 Gallons
Tank Upgrade Date: 1/1/0001
TankSystem Status: Removed
TankSystem Status Change Date: 8/26/1996
Tank Status: Removed
Tank Permit Expiration Date: 1/1/0001
Tank Closure Date: 1/1/0001
Tank Pumping System: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Steel
Tank Construction: Not reported
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Pipe Material: Coated Steel
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Tank Primary Release Detection: Not reported
Tank Second Release Detection: Not reported
Pipe Tightness Test: Not reported
Tank Actual Status Date: 8/6/1996
Tag Number: Not reported

Tank ID: 12245

WASHINGTON CORRECTIONS CENTER (Continued) **U003353250**

Tank Name:	GEN BIRCH
Install Date:	12/31/1964
Capacity:	111 TO 1,100 Gallons
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Coated Steel
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

Tank ID:	14125
Tank Name:	GEN IMU
Install Date:	12/31/1964
Capacity:	Not reported
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

WASHINGTON CORRECTIONS CENTER (Continued) **U003353250**

Tank ID:	14524
Tank Name:	GEN KITCHEN
Install Date:	12/31/1964
Capacity:	111 TO 1,100 Gallons
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

Tank ID:	1534
Tank Name:	USED OIL-MP
Install Date:	12/31/1964
Capacity:	Not reported
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Not reported
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

WASHINGTON CORRECTIONS CENTER (Continued) **U003353250**

Tank ID:	1562
Tank Name:	GEN GATE 4
Install Date:	12/31/1964
Capacity:	Not reported
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Not reported
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

Tank ID:	16482
Tank Name:	GEN SPRUCE
Install Date:	12/31/1964
Capacity:	111 TO 1,100 Gallons
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

WASHINGTON CORRECTIONS CENTER (Continued) **U003353250**

Tank ID:	18221
Tank Name:	GEN G
Install Date:	12/31/1964
Capacity:	111 TO 1,100 Gallons
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

Tank ID:	24778
Tank Name:	GEN-R UNITS
Install Date:	12/31/1964
Capacity:	111 TO 1,100 Gallons
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

WASHINGTON CORRECTIONS CENTER (Continued) **U003353250**

Tank ID:	29098
Tank Name:	GEN CD BLDS
Install Date:	12/31/1964
Capacity:	111 TO 1,100 Gallons
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

Tank ID:	29301
Tank Name:	GEN-STP
Install Date:	12/31/1964
Capacity:	111 TO 1,100 Gallons
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Coated Steel
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

WASHINGTON CORRECTIONS CENTER (Continued) **U003353250**

Tank ID:	31147
Tank Name:	DIESEL MOTOR
Install Date:	12/31/1964
Capacity:	111 TO 1,100 Gallons
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Coated Steel
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

Tank ID:	3520
Tank Name:	GEN AB BLDS
Install Date:	12/31/1964
Capacity:	Not reported
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Not reported
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

WASHINGTON CORRECTIONS CENTER (Continued) **U003353250**

Tank ID:	39387
Tank Name:	TANK #20
Install Date:	12/31/1964
Capacity:	Not reported
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Not reported
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

Tank ID:	42713
Tank Name:	POWERHOUSE
Install Date:	12/31/1964
Capacity:	Not reported
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

WASHINGTON CORRECTIONS CENTER (Continued) **U003353250**

Tank ID:	4970
Tank Name:	GEN EVERGREE
Install Date:	12/31/1964
Capacity:	111 TO 1,100 Gallons
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

Tank ID:	5311
Tank Name:	USED OIL-VS
Install Date:	12/31/1964
Capacity:	111 TO 1,100 Gallons
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

WASHINGTON CORRECTIONS CENTER (Continued) **U003353250**

Tank ID:	6347
Tank Name:	UNLEAD MOTOR
Install Date:	12/31/1964
Capacity:	Not reported
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

Tank ID:	6701
Tank Name:	LEAD-MOTOR P
Install Date:	12/31/1964
Capacity:	Not reported
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

WASHINGTON CORRECTIONS CENTER (Continued) **U003353250**

Tank ID:	6887
Tank Name:	GEN PINE
Install Date:	12/31/1964
Capacity:	Not reported
Tank Upgrade Date:	1/1/0001
TankSystem Status:	Removed
TankSystem Status Change Date:	8/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	1/1/0001
Tank Closure Date:	1/1/0001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	8/6/1996
Tag Number:	Not reported

ICR:

Date Ecology Received Report:	11/16/94
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Tank
Region:	South Western
Type of Report Ecology Received:	Final cleanup report
Site Register Issue:	93-39
County Code:	23
Contact:	Not reported
Report Title:	Not reported

B7 **WA STATE DOC** **CSCSL S108544849**
SW **2321 DAYTON AIRPORT RD** **ALLSITES N/A**
1/2-1 **SHELTON, WA** **SPILLS**
0.805 mi.
4248 ft. **Site 2 of 2 in cluster B**

Relative:
Higher

Actual:
301 ft.

CSCSL:

Facility ID:	9440483
Region:	Southwest
Lat/Long:	47.245638999999 / -123.1872220000
Brownfield Status:	Not reported
Rank Status:	Not reported
Clean Up Siteid:	1098
Site Status:	Awaiting Cleanup
PSI?:	Not reported
Contaminant Name:	Petroleum Products - unspecified
Ground Water:	S

WA STATE DOC (Continued) **S108544849**

Surface Water: Not reported
Soil: C
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Southwest

Facility ID: 9440483
Region: Southwest
Lat/Long: 47.245638999999 / -123.1872220000
Brownfield Status: Not reported
Rank Status: Not reported
Clean Up Siteid: 1098
Site Status: Awaiting Cleanup
PSI?: Not reported
Contaminant Name: Polychlorinated biPhenyls (PCB)
Ground Water: S
Surface Water: Not reported
Soil: C
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Southwest

ALLSITES:
Facility Id: 9440483
Latitude: 47.245638999999997
Longitude: -123.18722200000001
Geographic location identifier (alias facid): 9440483
Facility Name: WA STATE CORRECTIONS CTR TRANSFORMER
Latitude Decimal Degrees: 47.245638999999997
Longitude Decimal Degrees: -123.18722200000001
Coordinate Point Areal Extent Code: 1
Horizontal Accuracy Code: 11
Coordinate Point Geographic Position Code: 8
Location Verified Code: Y

Geographic Location Identifier (Alias Facid): 9440483
Interaction (Aka Env Int) Type Code: SCS
Interaction (Aka Env Int) Description: State Cleanup Site
Interaction Status: A
Federal Program Indentifier: Not reported
Interaction Start Date: 5/25/2007
Interaction End Date: Not reported
prgm_facil: WA STATE CORRECTIONS CTR TRANSFORMER
cur_sys_pr: TOXICS
cur_sys_nm: ISIS

SPILLS:
Facility ID: 562837
Medium: Not reported
Material Desc: PETROLEUM - MINERAL OIL
Material Qty: 1
Material Units: UNKNOWN
Date Received: 5/25/2007

WA STATE DOC (Continued) **S108544849**

Contact Name: Not reported

Count: 41 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
SHELTON	1000366619	MASON COUNTY LANDFILL	MASON COUNTY LANDFILL DAYTON A	98584	FINDS,RCRA-NLR
SHELTON	1001806862	TACOMA PUBLIC UTILITIES CUSHMAN DA	N 21451 HWY 101	98584	FINDS,ALLSITES,RCRA-CESQG,MAI
SHELTON	1004613864	MASON CNTY PUD NO 1	N 21971 HWY 101	98584	PADS
SHELTON	1004794575	KENS AUTO BODY REPAIR	SE 1111 HWY 3	98584	FINDS,ALLSITES,RCRA-NLR
SHELTON	1006834684	MASON COUNTY LANDFILL	GEN. SERVICES ADMIN. 4TH & ALD	98584	FINDS
SHELTON	1007062414	SHELTON FLIGHT INC	HWY 101 SANDERSON FIELD	98584	FINDS,UST,ALLSITES
SHELTON	1007067719	SKOOKUM LUMBER PLANT	780 W HWY 108	98584	FINDS,UST,MANIFEST,ALLSITES
SHELTON	1007069178	SIMPSON TIMBER CO DAYTON SORT YARD	DAYTON MATLOCK RD	98584	FINDS,LUST NORTHWEST REGION
SHELTON	1007069235	PUBLIC UTILITY DIST 3 MASON COUNTY	HWY 101 & K ST	98584	FINDS,HWS,ALLSITES,UST
SHELTON	1007071603	MASON COUNTY PUD 1 UST 2713	21987 HWY 101 N	98584	FINDS
SHELTON	1007074247	PLANT SITE	WATERFRONT	98584	FINDS
SHELTON	1007074282	WA PARKS POTLATCH STATE PARK	N 21020 HWY 101	98584	FINDS,ALLSITES,UST
SHELTON	1007074312	FERRELLGAS HOODSPORT	N 19920 HWY 101	98584	FINDS,ALLSITES
SHELTON	1007076368	TIME OIL CO 01 366	N 19930 HWY 101	98584	FINDS,ALLSITES
SHELTON	1007076754	BAYSHORE S&G	3863 HWY 3 E	98584	FINDS,ALLSITES
SHELTON	1007077007	MASON CNTY PW LAKE LIMERICK N ENTR	6 MI NE OF SHELTON	98584	FINDS
SHELTON	1007077372	MASON CNTY PW PICKERING RD	PICKERING RD & HARTSTENE ISL B	98584	FINDS
SHELTON	1007077635	MASON CNTY PW CENTER ISLAND SITE	CENTER OF HARSTENE ISLAND	98584	FINDS
SHELTON	1007077882	MASON CNTY PW MASON LK RD PIT	PARADISE 10.5 MI NE OF SHELTON	98584	FINDS
SHELTON	1007079643	MASON CNTY PW KENNEDY CREEK QUARRY	HWY 101 7 MI S OF SHELTON	98584	FINDS
SHELTON	1007263467	MASON CNTY PW ISABELLA LAKE STCKPL	CLOQUALLUM RD		FINDS,NPDES
SHELTON	1007457151	SMITH TOWING	655 E PINE AKA HWY 3	98584	FINDS,ALLSITES
SHELTON	1007462812	MASON CNTY PW TRAILS RD STOCKPILE	TRAILS RD	98584	FINDS
SHELTON	1007994193	MASON GENERAL HOSPITAL, 901 MTN. V	M.G. HOSP., 901 MTN. VIEW DR.	98584	FINDS
SHELTON	1009395161	CUSHMAN NO. 2	21451 HWY. 101	98584	INDIAN UST R4
SHELTON	1009395168	POTLATCH JACKPOT	N. 19300 HWY. 101	98584	INDIAN UST R4
SHELTON	1009395174	TWIN TOTEMS GROCERY-GAS-DELI	N. 19390 U.S. HWY. 101	98584	INDIAN UST R4
SHELTON	1009395206	KAMILCHE TRADING POST	61 W. HWY. 108	98584	INDIAN UST R4
SHELTON	1009395819	POTLATCH JACKPOT	N. 19300 HWY. 101	98584	INDIAN LUST R5
SHELTON	1009517903	MASON COUNTY PUD #3	34D & COTA	98584	FTTS,HIST FTTS INSP
SHELTON	1010338987	CHARLES BELANDER TOWING	1926 HWY 101	98584	RCRA-NLR
SHELTON	1010788423	SKOOKUM LUMBER PLANT	780 W HWY 108	98584	RCRA-LQG
SHELTON	1011281120	JOHN PRAIRIE SITE	CAPITOL HILL ROAD	98584	FINDS,ALLSITES
SHELTON	1011848022	MASON COUNTY GARBAGE & RECYCLING	81 WILBUR WAY	98584	FINDS
SHELTON	1011978136	MASON CNTY CENTRAL SHOP SHELTON	100 W PUBLIC WORKS DR	98584	FINDS
SHELTON	1012137093	MASON COUNTY PUBLIC WORKS DR	100 PUBLIC WORKS DR	98584	FINDS
SHELTON	S103503049	C & J'S GROCERY	3429 HWY 12	98584	ICR
SHELTON	S103506159	CHEVRON #9 2553	ARCADIA ROAD AND OLYMPIC HWY S	98584	ICR
SHELTON	S104485232	21971 HWY 101 HOODSPORT	N. 21987 HWY 101	98584	ICR
SHELTON	S108163298	MASON COUNTY PUD 1	21971 & 21987 N US HWY 101	98584	CSCSL NFA,VCP,ALLSITES
SHELTON	S110700758	BAYSHORE GOLF COURSE	3800 E STATE ROUTE 3	98584	ALLSITES

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 15

Source: EPA
Telephone: N/A
Last EDR Contact: 04/13/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 15

Source: EPA
Telephone: N/A
Last EDR Contact: 04/13/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 05/16/2011
Next Scheduled EDR Contact: 08/29/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 15

Source: EPA
Telephone: N/A
Last EDR Contact: 04/13/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/25/2011
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 04/29/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing
A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPAa??s Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/10/2010
Date Data Arrived at EDR: 01/11/2011
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/15/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned
Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 02/25/2011
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 04/29/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 05/25/2010
Date Data Arrived at EDR: 06/02/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 124

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 05/16/2011
Next Scheduled EDR Contact: 08/29/2011
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 01/05/2011
Date Data Arrived at EDR: 01/14/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 01/05/2011
Date Data Arrived at EDR: 01/14/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/07/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 73

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Annually

State- and tribal - equivalent NPL

HSL: Hazardous Sites List

The Hazardous Sites List is a subset of the CSCSL Report. It includes sites which have been assessed and ranked using the Washington Ranking Method (WARM).

Date of Government Version: 03/01/2011
Date Data Arrived at EDR: 03/18/2011
Date Made Active in Reports: 03/30/2011
Number of Days to Update: 12

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 03/15/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Semi-Annually

State- and tribal - equivalent CERCLIS

CSCSL: Confirmed and Suspected Contaminated Sites List

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 04/26/2011
Date Data Arrived at EDR: 04/27/2011
Date Made Active in Reports: 05/16/2011
Number of Days to Update: 19

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 04/27/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Solid Waste Facility Database

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 12/14/2010
Date Data Arrived at EDR: 12/15/2010
Date Made Active in Reports: 12/23/2010
Number of Days to Update: 8

Source: Department of Ecology
Telephone: 360-407-6132
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Annually

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tanks Site List

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 02/23/2011
Date Data Arrived at EDR: 02/24/2011
Date Made Active in Reports: 03/18/2011
Number of Days to Update: 22

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 02/24/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 01/31/2011
Date Data Arrived at EDR: 02/01/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 48

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 03/03/2011
Date Data Arrived at EDR: 03/18/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 45

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Semi-Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/03/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 09/01/2010
Date Data Arrived at EDR: 11/05/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 84

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/03/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 02/03/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 11/04/2009
Date Data Arrived at EDR: 05/04/2010
Date Made Active in Reports: 07/07/2010
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/04/2010
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 02/04/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: Underground Storage Tank Database
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 02/23/2011
Date Data Arrived at EDR: 02/24/2011
Date Made Active in Reports: 03/18/2011
Number of Days to Update: 22

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 02/24/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Quarterly

AST: Aboveground Storage Tank Locations
A listing of aboveground storage tank locations regulated by the Department of Ecology's Spill Prevention, Preparedness and Response Program.

Date of Government Version: 05/27/2009
Date Data Arrived at EDR: 05/28/2009
Date Made Active in Reports: 06/19/2009
Number of Days to Update: 22

Source: Department of Ecology
Telephone: 360-407-7562
Last EDR Contact: 05/09/2011
Next Scheduled EDR Contact: 08/22/2011
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 03/03/2011
Date Data Arrived at EDR: 03/18/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 45

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Semi-Annually

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 01/31/2011
Date Data Arrived at EDR: 02/01/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 48

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 02/04/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/03/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 09/01/2010
Date Data Arrived at EDR: 11/05/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 84

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/03/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 01/01/2011
Date Data Arrived at EDR: 02/23/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 68

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 02/03/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 11/01/2010
Date Data Arrived at EDR: 12/02/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 57

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 02/03/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 04/18/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

INST CONTROL: Institutional Control Site List
Sites that have institutional controls.

Date of Government Version: 02/15/2011
Date Data Arrived at EDR: 02/18/2011
Date Made Active in Reports: 02/24/2011
Number of Days to Update: 6

Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 05/18/2011
Next Scheduled EDR Contact: 08/29/2011
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/01/2010
Date Data Arrived at EDR: 01/05/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 75

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Sites
Sites that have entered either the Voluntary Cleanup Program or its predecessor Independent Remedial Action Program.

Date of Government Version: 01/25/2011
Date Data Arrived at EDR: 02/03/2011
Date Made Active in Reports: 02/18/2011
Number of Days to Update: 15

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 04/26/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

ICR: Independent Cleanup Reports
These are remedial action reports Ecology has received from either the owner or operator of the sites. These actions have been conducted without department oversight or approval and are not under an order or decree. This database is no longer updated by the Department of Ecology.

Date of Government Version: 12/01/2002
Date Data Arrived at EDR: 01/03/2003
Date Made Active in Reports: 01/22/2003
Number of Days to Update: 19

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 08/10/2009
Next Scheduled EDR Contact: 11/09/2009
Data Release Frequency: No Update Planned

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Sites Listing
A listing of brownfields sites included in the Confirmed & Suspected Sites Listing. Brownfields are abandoned, idle or underused commercial or industrial properties, where the expansion or redevelopment is hindered by real or perceived contamination. Brownfields vary in size, location, age, and past use -- they can be anything from a five-hundred acre automobile assembly plant to a small, abandoned corner gas station.

Date of Government Version: 04/26/2011
Date Data Arrived at EDR: 04/27/2011
Date Made Active in Reports: 05/12/2011
Number of Days to Update: 15

Source: Department of Ecology
Telephone: 360-725-4030
Last EDR Contact: 04/27/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 12/29/2010
Date Data Arrived at EDR: 12/30/2010
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/29/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 03/28/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWTIRE: Solid Waste Tire Facilities
This study identified sites statewide with unauthorized accumulations of scrap tires.

Date of Government Version: 11/01/2005
Date Data Arrived at EDR: 03/16/2006
Date Made Active in Reports: 04/13/2006
Number of Days to Update: 28

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 03/16/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 05/09/2011
Next Scheduled EDR Contact: 08/22/2011
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/02/2011
Date Data Arrived at EDR: 03/17/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 46

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/08/2011
Next Scheduled EDR Contact: 06/20/2011
Data Release Frequency: Quarterly

ALLSITES: Facility/Site Identification System Listing
Information on facilities and sites of interest to the Department of Ecology.

Date of Government Version: 02/08/2011
Date Data Arrived at EDR: 02/09/2011
Date Made Active in Reports: 02/24/2011
Number of Days to Update: 15

Source: Department of Ecology
Telephone: 360-407-6423
Last EDR Contact: 05/12/2011
Next Scheduled EDR Contact: 08/22/2011
Data Release Frequency: Quarterly

CSCSL NFA: Confirmed and Contaminated Sites - No Further Action
The data set contains information about sites previously on the Confirmed and Suspected Contaminated Sites list that have received a No Further Action (NFA) determination. Because it is necessary to maintain historical records of sites that have been investigated and cleaned up, sites are not deleted from the database when cleanup activities are completed. Instead, a No Further Action code is entered based upon the type of NFA determination the site received.

Date of Government Version: 04/26/2011
Date Data Arrived at EDR: 04/27/2011
Date Made Active in Reports: 05/12/2011
Number of Days to Update: 15

Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 04/27/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Semi-Annually

CDL: Clandestine Drug Lab Contaminated Site List
Illegal methamphetamine labs use hazardous chemicals that create public health hazards. Chemicals and residues can cause burns, respiratory and neurological damage, and death. Biological hazards associated with intravenous needles, feces, and blood also pose health risks.

Date of Government Version: 02/09/2009
Date Data Arrived at EDR: 03/18/2009
Date Made Active in Reports: 03/24/2009
Number of Days to Update: 6

Source: Department of Health
Telephone: 360-236-3380
Last EDR Contact: 05/17/2011
Next Scheduled EDR Contact: 08/29/2011
Data Release Frequency: Varies

HIST CDL: List of Sites Contaminated by Clandestine Drug Labs
This listing of contaminated sites by Clandestine Drug Labs includes non-remediated properties. The current CDL listing does not. This listing is no longer updated by the state agency.

Date of Government Version: 02/08/2007
Date Data Arrived at EDR: 06/26/2007
Date Made Active in Reports: 07/19/2007
Number of Days to Update: 23

Source: Department of Health
Telephone: 360-236-3381
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

LUCIS: Land Use Control Information System
LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/22/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/05/2011
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 51

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Annually

SPILLS: Reported Spills
Spills reported to the Spill Prevention, Preparedness and Response Division.

Date of Government Version: 04/07/2011
Date Data Arrived at EDR: 04/07/2011
Date Made Active in Reports: 05/12/2011
Number of Days to Update: 35

Source: Department of Ecology
Telephone: 360-407-6950
Last EDR Contact: 03/28/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Semi-Annually

Other Ascertainable Records

RCRA-NonGen: RCRA - Non Generators
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/12/2011
Date Data Arrived at EDR: 02/11/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 05/11/2011
Next Scheduled EDR Contact: 08/22/2011
Data Release Frequency: Varies

DOD: Department of Defense Sites
This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/21/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites
The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 08/12/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 112

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 03/15/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 10/01/2010
Date Data Arrived at EDR: 10/29/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 91

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/04/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 02/25/2011
Date Data Arrived at EDR: 03/16/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 5

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/16/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/21/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 99

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 03/04/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Varies

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/08/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/09/2011
Next Scheduled EDR Contact: 06/20/2011
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/17/2010
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 94

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 03/01/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/29/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Every 4 Years

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/28/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/28/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 01/07/2011
Date Data Arrived at EDR: 01/21/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 59

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 03/28/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2010
Date Data Arrived at EDR: 11/10/2010
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 98

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/22/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/18/2010
Date Data Arrived at EDR: 04/06/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 51

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/11/2011
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 34

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/13/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/14/2010
Date Data Arrived at EDR: 04/16/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 41

Source: EPA
Telephone: (206) 553-1200
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 03/01/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Biennially

UIC: Underground Injection Wells Listing

A listing of underground injection wells.

Date of Government Version: 02/23/2011
Date Data Arrived at EDR: 02/24/2011
Date Made Active in Reports: 03/18/2011
Number of Days to Update: 22

Source: Department of Ecology
Telephone: 360-407-6143
Last EDR Contact: 02/24/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Varies

WA MANIFEST: Hazardous Waste Manifest Data

Hazardous waste manifest information.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 05/13/2010
Date Made Active in Reports: 05/19/2010
Number of Days to Update: 6

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 04/25/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Annually

DRYCLEANERS: Drycleaner List

A listing of registered drycleaners who registered with the Department of Ecology (using the SIC code of 7215 and 7216) as hazardous waste generators.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 05/13/2010
Date Made Active in Reports: 05/19/2010
Number of Days to Update: 6

Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 04/25/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Varies

NPDES: Water Quality Permit System Data

A listing of permitted wastewater facilities.

Date of Government Version: 02/15/2011
Date Data Arrived at EDR: 02/18/2011
Date Made Active in Reports: 04/07/2011
Number of Days to Update: 48

Source: Department of Ecology
Telephone: 360-407-6073
Last EDR Contact: 04/25/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Quarterly

AIRS (EMI): Washington Emissions Data System

Emissions inventory data.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 01/11/2011
Date Made Active in Reports: 02/23/2011
Number of Days to Update: 43

Source: Department of Ecology
Telephone: 360-407-6040
Last EDR Contact: 03/28/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Annually

INACTIVE DRYCLEANERS: Inactive Drycleaners
A listing of inactive drycleaner facility locations.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 05/13/2010
Date Made Active in Reports: 05/19/2010
Number of Days to Update: 6

Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 04/25/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Annually

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/21/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/09/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Varies

FINANCIAL ASSURANCE 3: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/19/2007
Number of Days to Update: 44

Source: Department of Ecology
Telephone: 360-407-6136
Last EDR Contact: 03/24/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Varies

FINANCIAL ASSURANCE 1: Financial Assurance Information Listing
A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/22/2011
Date Data Arrived at EDR: 03/02/2011
Date Made Active in Reports: 03/18/2011
Number of Days to Update: 16

Source: Department of Ecology
Telephone: 360-586-1060
Last EDR Contact: 02/22/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Varies

FINANCIAL ASSURANCE 2: Financial Assurance Information Listing
A listing of financial assurance information for hazardous waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 11/30/2010
Date Made Active in Reports: 12/23/2010
Number of Days to Update: 23

Source: Department of Ecology
Telephone: 360-407-6754
Last EDR Contact: 02/22/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Varies

COAL ASH: Coal Ash Disposal Site Listing
A listing of coal ash disposal site locations.

Date of Government Version: 06/29/2009
Date Data Arrived at EDR: 07/02/2009
Date Made Active in Reports: 07/08/2009
Number of Days to Update: 6

Source: Department of Ecology
Telephone: 360-407-6933
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 04/19/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/18/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 01/01/2008
Date Data Arrived at EDR: 02/18/2009
Date Made Active in Reports: 05/29/2009
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 05/05/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/21/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: N/A

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

COUNTY RECORDS

KING COUNTY:

Abandoned Landfill Study in King County
The King County Abandoned Landfill Survey was conducted from October through December 1984 by the Health Department's Environmental Health Division at the request of the King County Council. The primary objective of the survey was to determine if any public health problems existed at the predetermined 24 sites.

Date of Government Version: 04/30/1985
Date Data Arrived at EDR: 11/07/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Seattle-King County Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 10/21/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SEATTLE COUNTY:

Abandoned Landfill Study in the City of Seattle
The Seattle Abandoned Landfill Survey was conducted in June and July of 1984 by the Health Department's Environmental Health Division at the request of the Mayor's Office. The primary objective of the survey was to determine if any public health problems existed at the predetermined 12 sites.

Date of Government Version: 07/30/1984
Date Data Arrived at EDR: 11/07/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Seattle - King County Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 10/21/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SEATTLE/KING COUNTY:

Seattle - King County Abandoned Landfill Toxicity / Hazard Assessment Project
This report presents the Seattle-King County Health Department's follow-up investigation of two city owned and four county owned abandoned landfills which was conducted from February to December 1986.

Date of Government Version: 12/31/1986
Date Data Arrived at EDR: 08/18/1995
Date Made Active in Reports: 09/20/1995
Number of Days to Update: 33

Source: Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 08/14/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SNOHOMISH COUNTY:

Solid Waste Sites of Record at Snohomish Health District
Solid waste disposal and/or utilization sites in Snohomish County.

Date of Government Version: 03/08/2011
Date Data Arrived at EDR: 03/31/2011
Date Made Active in Reports: 05/06/2011
Number of Days to Update: 36

Source: Snohomish Health District
Telephone: 206-339-5250
Last EDR Contact: 03/29/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Semi-Annually

TACOMA/PIERCE COUNTY:

Closed Landfill Survey

Following numerous requests for information about closed dumpsites and landfills in Pierce County, the Tacoma-Pierce County Health Department decided to conduct a study on the matter. The aim of the study was to evaluate public health risks associated with the closed dumpsites and landfills, and to determine the need, if any, for further investigations of a more detailed nature. The sites represent all of the known dumpsites and landfills closed after 1950.

Date of Government Version: 09/01/2002
Date Data Arrived at EDR: 03/24/2003
Date Made Active in Reports: 05/14/2003
Number of Days to Update: 51

Source: Tacoma-Pierce County Health Department
Telephone: 206-591-6500
Last EDR Contact: 03/19/2003
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 08/26/2009
Date Made Active in Reports: 09/11/2009
Number of Days to Update: 16

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/25/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 02/09/2011
Date Made Active in Reports: 03/04/2011
Number of Days to Update: 23

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 05/12/2011
Next Scheduled EDR Contact: 08/22/2011
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 12/01/2009
Date Made Active in Reports: 12/14/2009
Number of Days to Update: 13

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/04/2011
Next Scheduled EDR Contact: 07/06/2011
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 07/06/2010
Date Made Active in Reports: 07/26/2010
Number of Days to Update: 20

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/21/2011
Next Scheduled EDR Contact: 07/04/2011
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Daycare Center Listing
Source: Department of Social & Health Services
Telephone: 253-383-1735

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2009 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

GEOCHECK®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

MASON COUNTY SITE
1100 WEST DAYTON AIRPORT ROAD
SHELTON, WA 98584

TARGET PROPERTY COORDINATES

Latitude (North):	47.25210 - 47° 15' 7.6"
Longitude (West):	123.1751 - 123° 10' 30.4"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	486750.2
UTM Y (Meters):	5232976.0
Elevation:	298 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	47123-C2 SKOKOMISH VALLEY, WA
Most Recent Revision:	1986
South Map:	47123-B2 SHELTON VALLEY, WA
Most Recent Revision:	1981

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

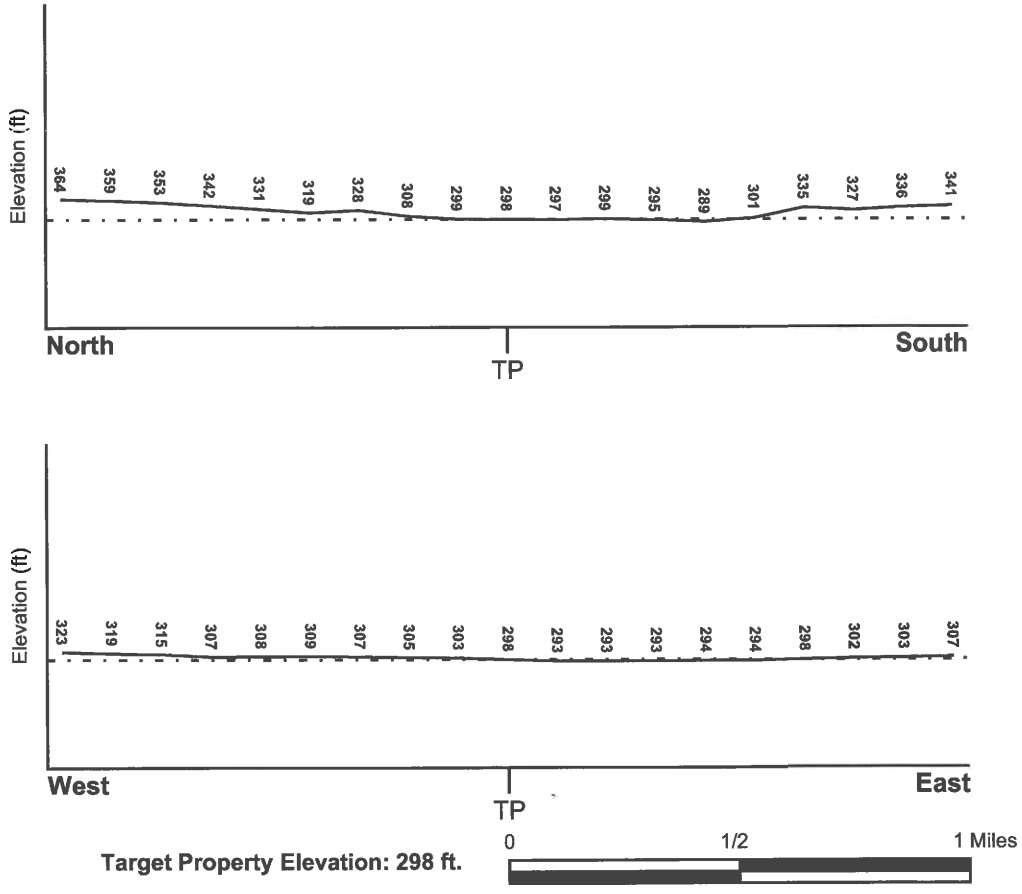
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
MASON, WA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 5301150190C - FEMA Q3 Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
POTLATCH	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

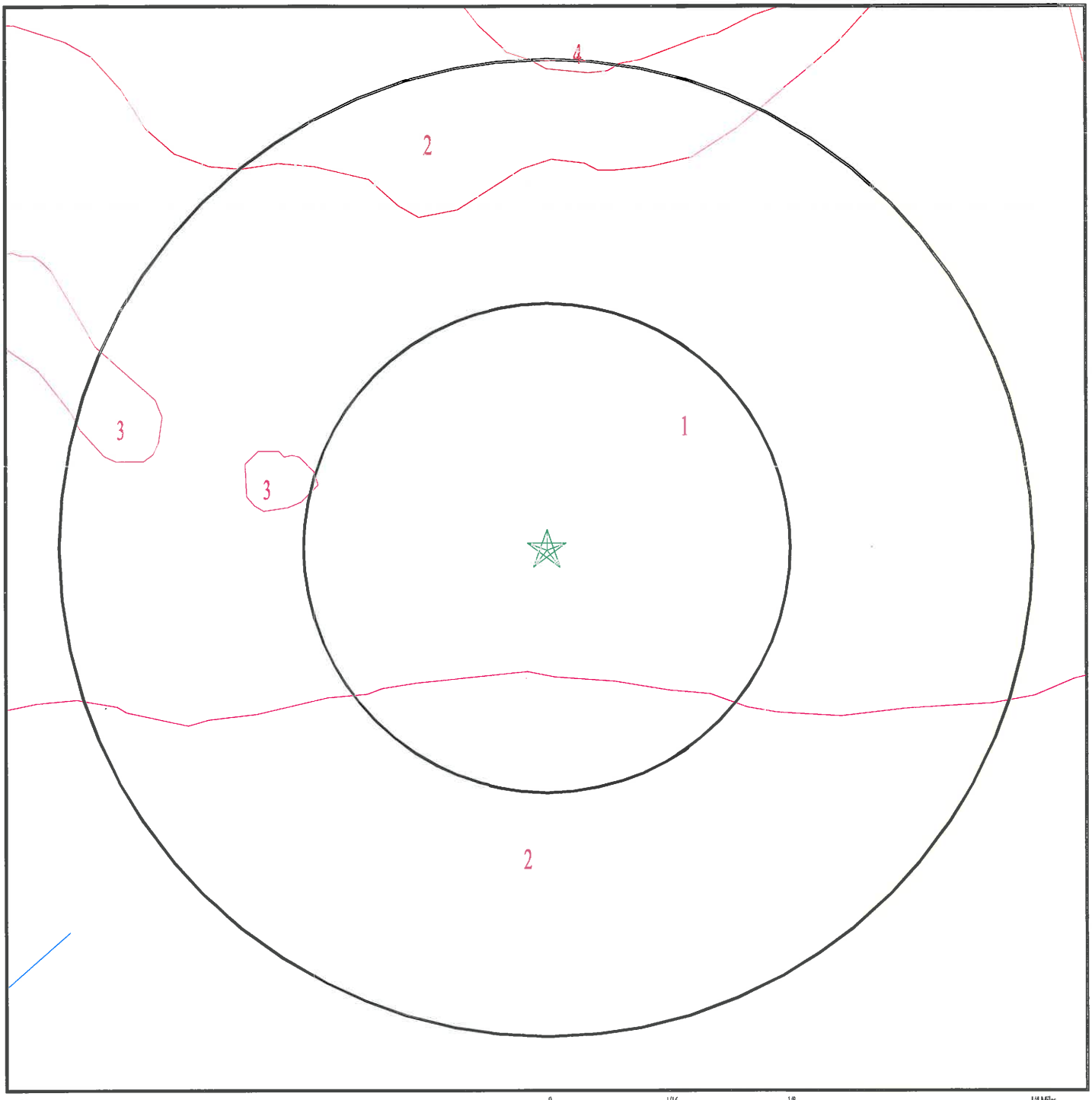
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 3074151.2s



☆ Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

SITE NAME:	Mason County Site	CLIENT:	EHS International, Inc.
ADDRESS:	1100 West Dayton Airport Road Shelton WA 98584	CONTACT:	Jason Cass
LAT/LONG:	47.2521 / 123.1751	INQUIRY #:	3074151.2s
		DATE:	May 19, 2011 6:59 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Lystair

Soil Surface Texture: loamy sand

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 6.5 Min: 5.6
2	3 inches	16 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 6.5 Min: 5.6
3	16 inches	59 inches	sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 6.5 Min: 5.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 2

Soil Component Name: Grove

Soil Surface Texture: gravelly sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	12 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel.	Max: 141 Min: 42	Max: 6 Min: 5.6
2	12 inches	27 inches	very gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel.	Max: 141 Min: 42	Max: 6 Min: 5.6
3	27 inches	59 inches	very gravelly loamy sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel.	Max: 141 Min: 42	Max: 6 Min: 5.6

Soil Map ID: 3

Soil Component Name: Gravel pit

Soil Surface Texture: extremely gravelly sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	extremely gravelly sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel.	Max: 141 Min: 42	Max: 6 Min: 4.5
2	5 inches	59 inches	extremely gravelly sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel.	Max: 141 Min: 42	Max: 6 Min: 4.5

Soil Map ID: 4

Soil Component Name: Grove

Soil Surface Texture: gravelly sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat excessively drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel.	Max: 141 Min: 42	Max: 6 Min: 5.6
2	9 inches	24 inches	very gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel.	Max: 141 Min: 42	Max: 6 Min: 5.6
3	24 inches	59 inches	very gravelly loamy sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel.	Max: 141 Min: 42	Max: 6 Min: 5.6

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS3250518	1/2 - 1 Mile East
3	USGS3250487	1/2 - 1 Mile SE
A6	USGS3250514	1/2 - 1 Mile East

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

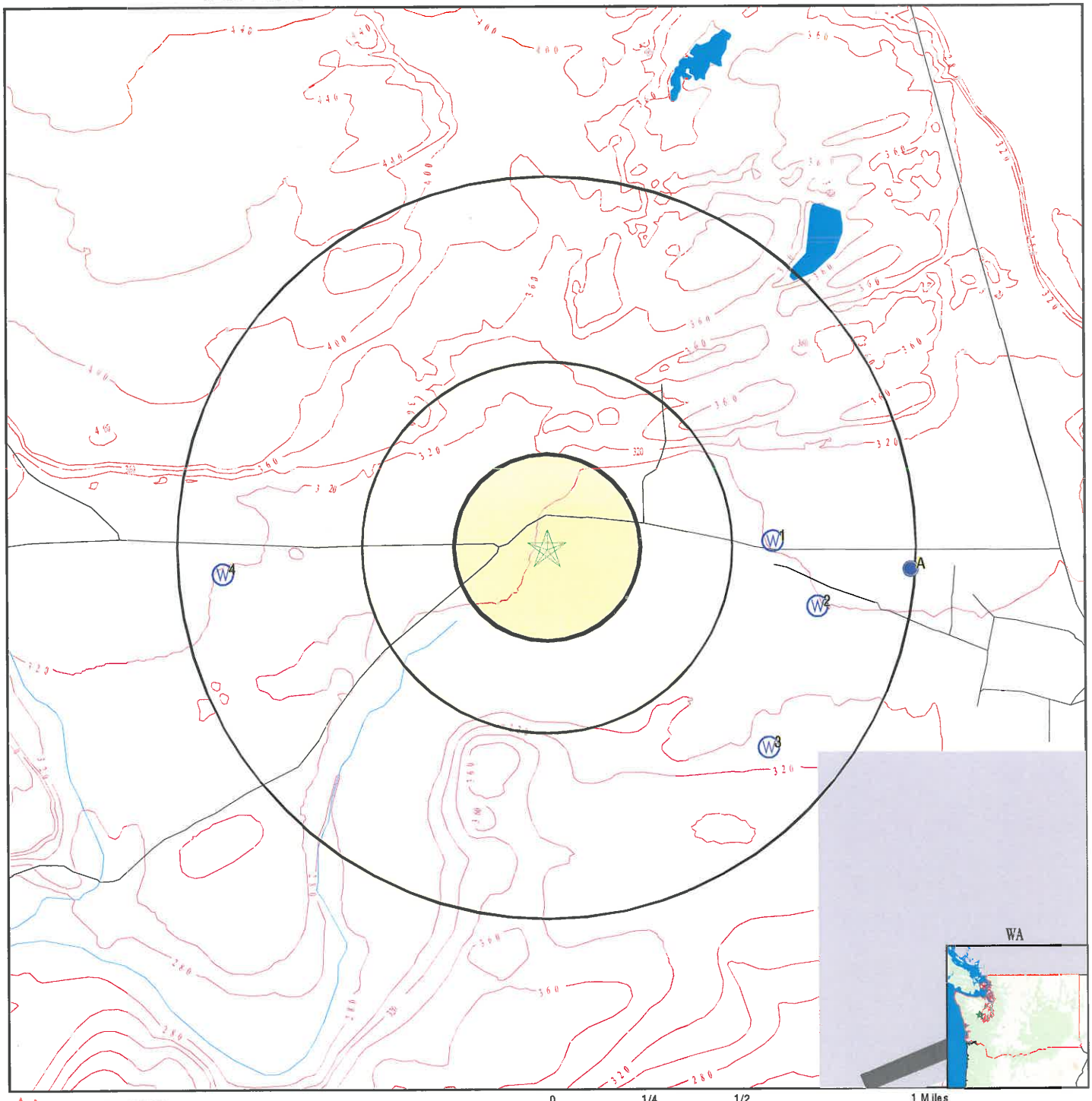
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
2	WA7000000009151	1/2 - 1 Mile ESE
4	WA7000000009178	1/2 - 1 Mile West
A5	WA7000000009186	1/2 - 1 Mile East

PHYSICAL SETTING SOURCE MAP - 3074151.2s



- County Boundary
- Major Roads
- Contour Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data

SITE NAME: Mason County Site	CLIENT: EHS International, Inc.
ADDRESS: 1100 West Dayton Airport Road Shelton WA 98584	CONTACT: Jason Cass
LAT/LONG: 47.2521 / 123.1751	INQUIRY #: 3074151.2s DATE: May 19, 2011 6:59 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
1	**FED USGS**	**USGS3250518**
East		
1/2 - 1 Mile		
Higher		

Agency cd:	USGS	Site no:	471509123093901
Site name:	20N/04W-02E01		
Latitude:	471509	EDR Site id:	USGS3250518
Longitude:	1230939	Dec lat:	47.25231573
Dec lon:	-123.16209788	Coor meth:	M
Coor accr:	F	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	53
State:	53	County:	045
Country:	US	Land net:	SW NW S02 T20N R04W W
Location map:	PLATE 3 BULLETIN 29	Map scale:	62500
Altitude:	280		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Puget Sound. Washington. Area = 2550 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19010101
Date inventoried:	19650524	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	60	Hole depth:	60
Source of depth data:	other government (other than USGS)		
Project number:	WA08900		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1901-01-01	Ground water data end date:	1901-01-01
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1901-01-01	42	

	Database	EDR ID Number
2	**WA WELLS**	**WA7000000009151**
ESE		
1/2 - 1 Mile		
Higher		

Objectid:	1887	Pwsid:	02993
Srcnum:	01	Pwssrcid:	0299301
Systemname:	WASHINGTON STATE PATROL ACADEMY		
Systemgrou:	A		
Systemtype:	NTNC	Region:	SW
County:	MASON	Smaid:	119
Ftrespopul:	0	Resconnect:	0
Totalconne:	18	Srcname:	WELL #1 NO TAG

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Srctype:	W	Srcusecode:	P
Srcwelldep:	73	Township:	20
Range:	04W	Section:	02
Qtrqtrsect:	NWSW		
Longitude:	-123.159505		
Latitude:	47.249767		
Latlongmet:	GPS	Srcsuscept:	M
Srcvulnioc:	L	Srcvulnvoc:	M
Srcvulnsoc:	L	Doewelltag:	Not Reported
Srctot6mo:	220	Srctot1yr:	310
Srctot5yr:	700	Srctot10yr:	980
Protection:	CFR	Pricontact:	3608760958
Priconta 1:	NORTHWEST WATER SYSTEMS INC	Priconta 2:	PO BOX 123
Priconta 3:	PORT ORCHARD	Priconta 4:	WA
Priconta 5:	983660123		
Priconta 6:	reg@nwwatersystems.com		
Pwseffecti:	11/22/1993	Srceffecti:	11/22/1993
Internalon:	N	Site id:	WA7000000009151

3
SE
1/2 - 1 Mile
Higher

FED USGS **USGS3250487**

Agency cd:	USGS	Site no:	471440123094001
Site name:	19N/04W-03J02		
Latitude:	471440	EDR Site id:	USGS3250487
Longitude:	1230940	Dec lat:	47.24426026
Dec lon:	-123.16237551	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	53
State:	53	County:	045
Country:	US	Land net:	NE SE S03 T19N R04W W
Location map:	SHELTON	Map scale:	62500
Altitude:	120		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	20		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Puget Sound. Washington. Area = 2550 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19751023
Date inventoried:	19751028	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	123	Hole depth:	Not Reported
Source of depth data:	driller		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1975-10-27	Ground water data end date:	1975-10-27
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1975-10-27	10	

4
West
1/2 - 1 Mile
Higher

WA WELLS **WA7000000009178**

Objectid:	10801	Pwsid:	51918
Srcnum:	01	Pwssrcid:	5191801
Systemname:	MASON COUNTY LANDFILL		
Systemgrou:	B		
Systemtype:	GRPB	Region:	SW
County:	MASON	Smaid:	Not Reported
Ftrespopul:	0	Resconnect:	0
Totalconne:	1	Srcname:	WELL #1 ACY633
Srctype:	W	Srcusecode:	P
Srcwelldep:	116	Township:	20
Range:	04W	Section:	04
Qtrqtrsect:	Not Reported		
Longitude:	-123.193728		
Latitude:	47.251066		
Latlongmet:	GPS	Srcsuscept:	N
Srcvulnioc:	H	Srcvulnvoc:	H
Srcvulnsoc:	X	Doewelltag:	ACY633
Srctot6mo:	0	Srctot1yr:	0
Srctot5yr:	0	Srctot10yr:	0
Protection:	Assigned	Pricontact:	3604277771
Priconta 1:	Not Reported	Priconta 2:	501 WEST EELES RD
Priconta 3:	SHELTON	Priconta 4:	WA
Priconta 5:	98584		
Priconta 6:	davidb@co.mason.wa.us		
Pwseffecti:	11/01/1979	Srceffecti:	01/01/1970
Internalon:	N	Site id:	WA7000000009178

A5
East
1/2 - 1 Mile
Higher

WA WELLS **WA7000000009186**

Objectid:	12495	Pwsid:	68835
Srcnum:	01	Pwssrcid:	6883501
Systemname:	PORT OF SHELTON SANDERSON FIELD		
Systemgrou:	A		
Systemtype:	NTNC	Region:	SW
County:	MASON	Smaid:	Not Reported
Ftrespopul:	0	Resconnect:	0
Totalconne:	37	Srcname:	WELL #1 AAF325
Srctype:	W	Srcusecode:	P
Srcwelldep:	136	Township:	20
Range:	04W	Section:	02
Qtrqtrsect:	NESW		
Longitude:	-123.154208		
Latitude:	47.251512		
Latlongmet:	GPS	Srcsuscept:	H
Srcvulnioc:	H	Srcvulnvoc:	H
Srcvulnsoc:	L	Doewelltag:	AAF325
Srctot6mo:	440	Srctot1yr:	620

Srctot5yr:	1390	Srctot10yr:	1970
Protection:	CFR	Pricontact:	3604261151
Priconta 1:	Not Reported	Priconta 2:	21 W SANDERSON WAY
Priconta 3:	SHELTON	Priconta 4:	WA
Priconta 5:	98584		
Priconta 6:	alf@portofshelton.com		
Pwseffecti:	01/01/1970	Srceffecti:	01/01/1970
Internalon:	N	Site id:	WA7000000009186

A6
East
1/2 - 1 Mile
Higher

FED USGS **USGS3250514**

Agency cd:	USGS	Site no:	471504123091001
Site name:	20N/04W-02F01		
Latitude:	471504	EDR Site id:	USGS3250514
Longitude:	1230910	Dec lat:	47.25092694
Dec lon:	-123.15404209	Coor meth:	M
Coor accr:	F	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	53
State:	53	County:	045
Country:	US	Land net:	SE NW S02 T20N R04W W
Location map:	PLATE 3 BULLETIN 29	Map scale:	62500
Altitude:	295		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Puget Sound. Washington. Area = 2550 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19430529
Date inventoried:	19430529	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	136	Hole depth:	136
Source of depth data:	other government (other than USGS)		
Project number:	WA08900		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1943-05-29	Ground water data end date:	1943-05-29
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1943-05-29	44	

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for MASON County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 98584

Number of sites tested: 7

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.257 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	1.133 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2009 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Wells
Source: Department of Health
Telephone: 360-236-3148
Group A and B well locations.

Water Well Listing
Source: Public Utility District
Telephone: 206-779-7656
A listing of water well locations in Kitsap County.

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Listing
Source: Department of Natural Resources
Telephone: 360-902-1445
Locations that represent oil and gas test well sites in Washington State from 1890 to present.

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

Mason County Site
1100 West Dayton Airport Road
Shelton, WA 98584

Inquiry Number: 3074151.4
May 23, 2011

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

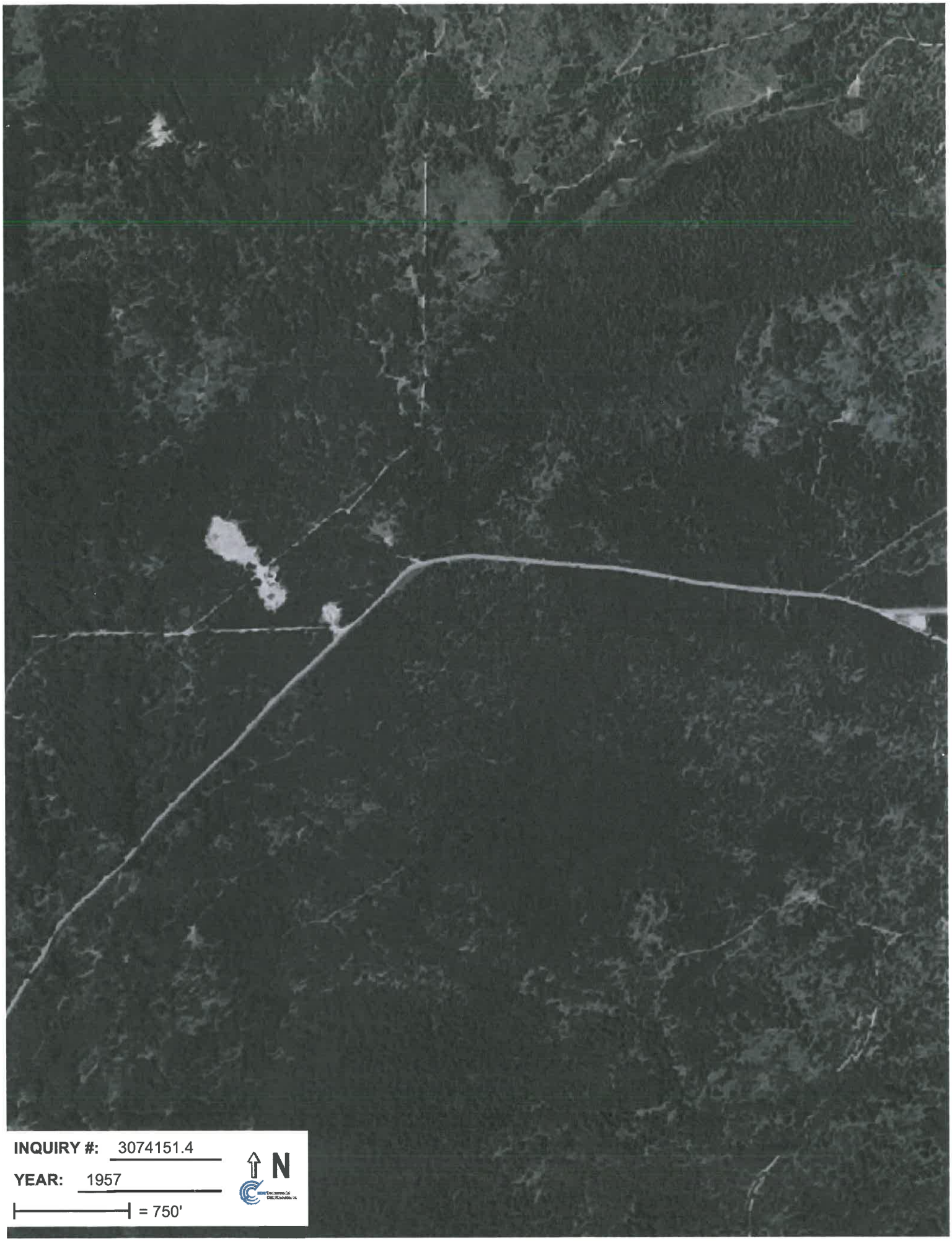
Aerial Photography May 23, 2011

Target Property:

1100 West Dayton Airport Road
Shelton, WA 98584

Year	*Scale*	*Details*	*Source*
1951	Aerial Photograph. Scale: 1"=750'	Panel #: 47123-C2, Skokomish Valley, WA;/Flight Date: July 22, 1951	EDR
1957	Aerial Photograph. Scale: 1"=750'	Panel #: 47123-C2, Skokomish Valley, WA;/Flight Date: July 18, 1957	EDR
1968	Aerial Photograph. Scale: 1"=1000'	Panel #: 47123-C2, Skokomish Valley, WA;/Flight Date: September 04, 1968	EDR
1973	Aerial Photograph. Scale: 1"=500'	Panel #: 47123-C2, Skokomish Valley, WA;/Flight Date: May 28, 1973	EDR
1980	Aerial Photograph. Scale: 1"=1000'	Panel #: 47123-C2, Skokomish Valley, WA;/Flight Date: July 29, 1980	EDR
1990	Aerial Photograph. Scale: 1"=750'	Panel #: 47123-C2, Skokomish Valley, WA;/Flight Date: July 15, 1990	EDR
2006	Aerial Photograph. Scale: 1"=604'	Panel #: 47123-C2, Skokomish Valley, WA;/Flight Date: January 01, 2006	EDR


INQUIRY #: 3074151.4
YEAR: 1951
= 750'
N



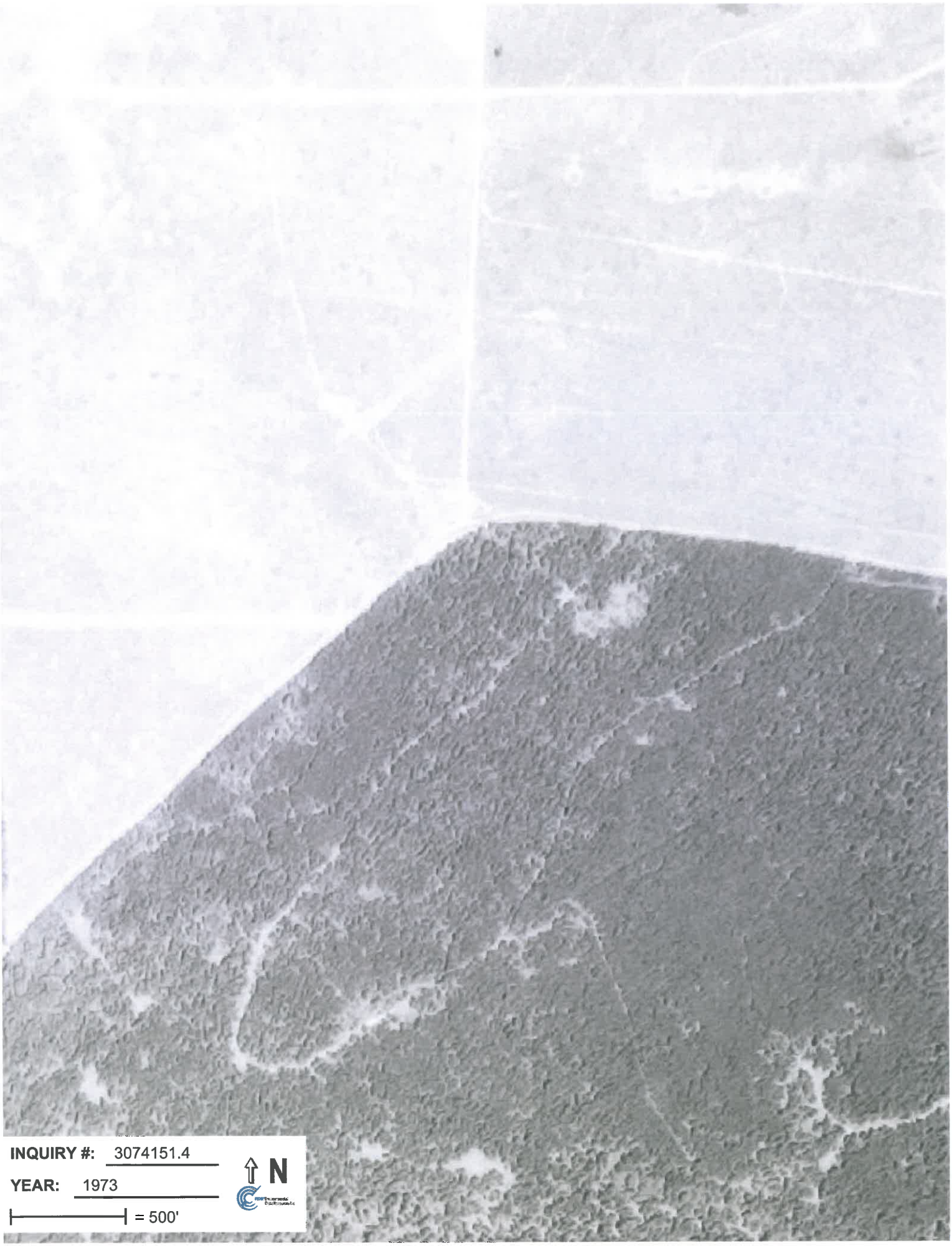
INQUIRY #: 3074151.4

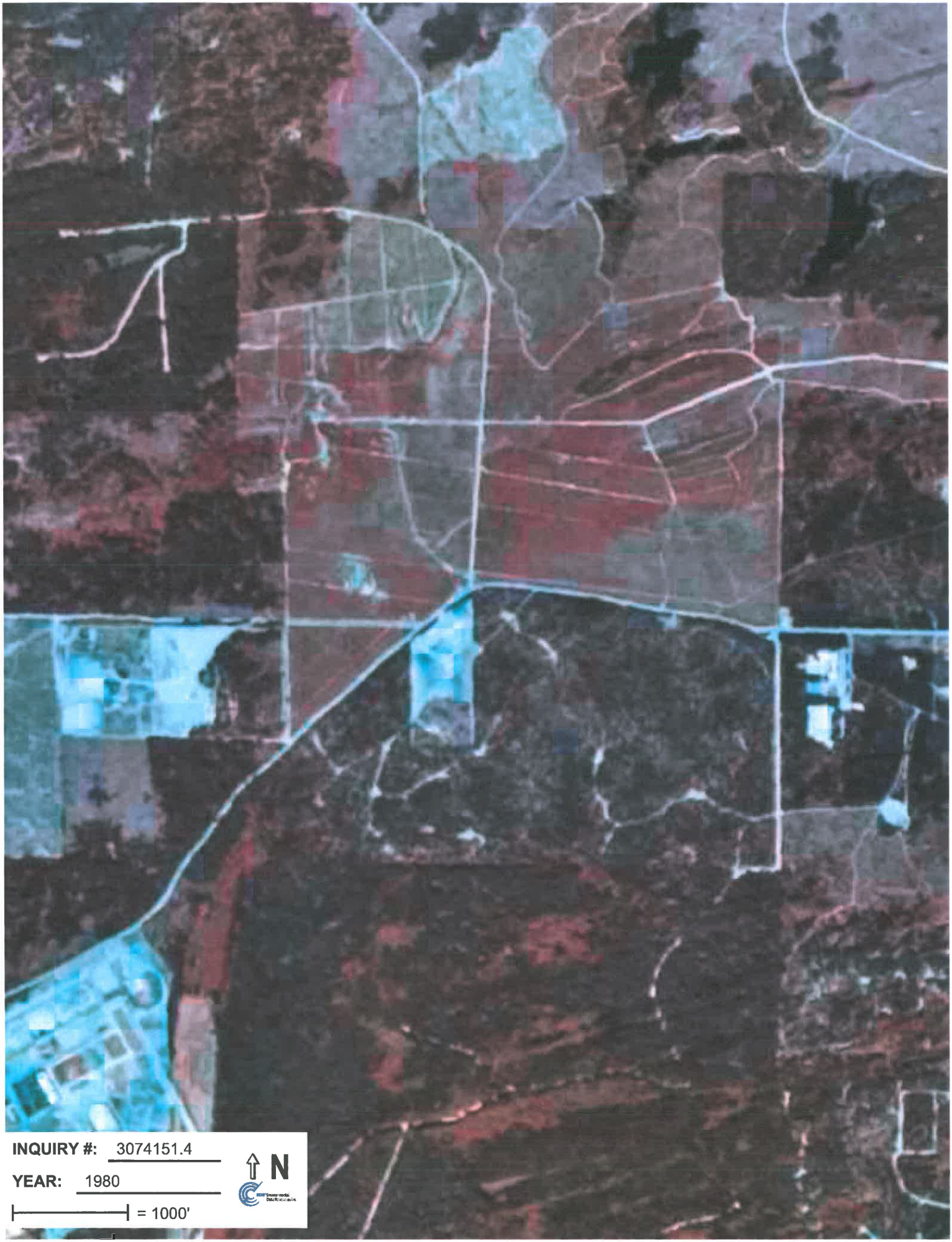
YEAR: 1957

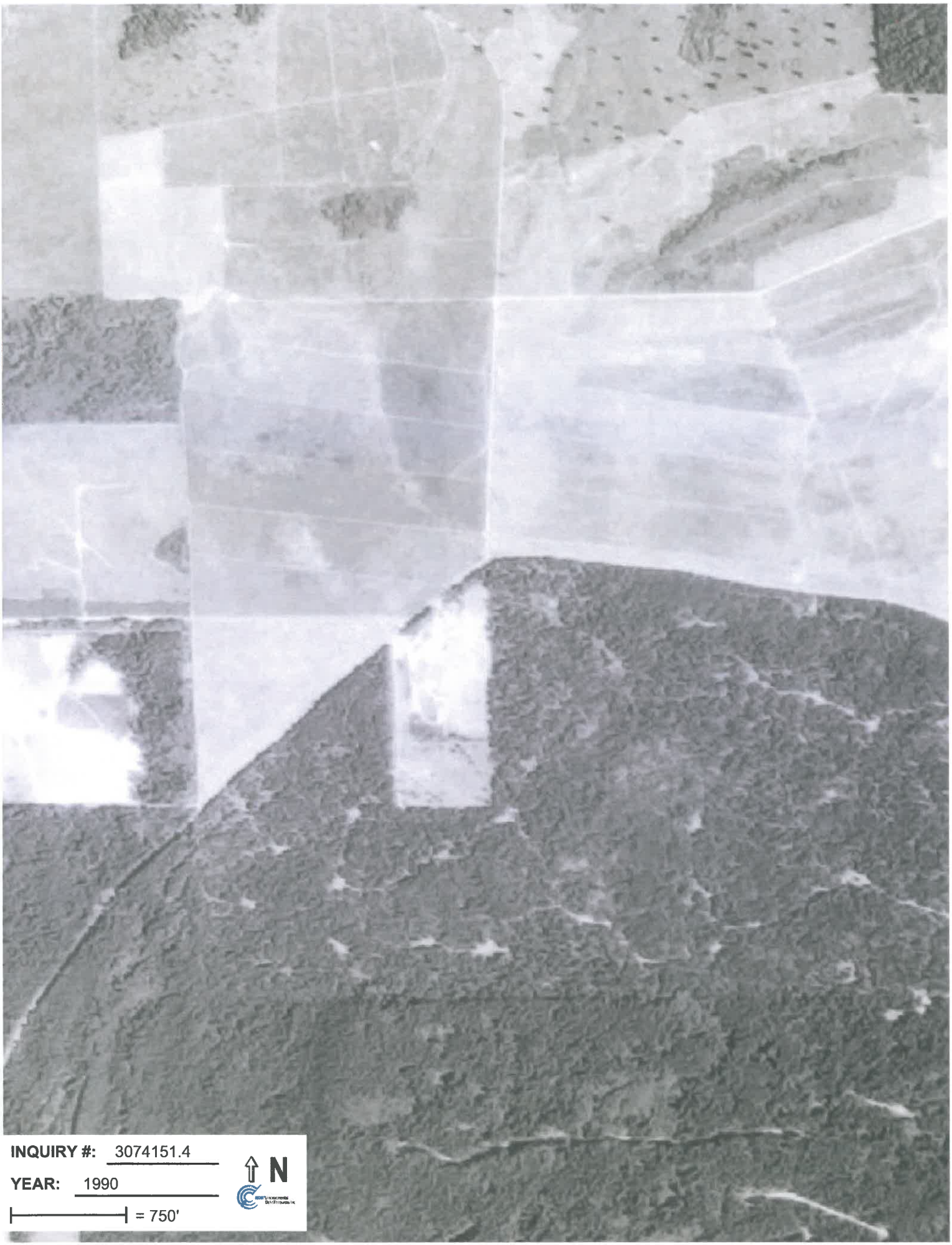
= 750'

N


INQUIRY #: 3074151.4
YEAR: 1968
= 1000'
N


INQUIRY #: 3074151.4
YEAR: 1973
= 500'
N


INQUIRY #: 3074151.4
YEAR: 1980
= 1000'
N


INQUIRY #: 3074151.4
YEAR: 1990
= 750'
N


INQUIRY #: 3074151.4
YEAR: 2006
= 604'
N

Mason County Site
1100 West Dayton Airport Road
Shelton, WA 98584

Inquiry Number: 3074151.3
May 19, 2011

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

5/19/11

Site Name:
Mason County Site
1100 West Dayton Airport Road
Shelton, WA 98584

Client Name:
EHS International, Inc.
13228 NE 20th Street
Bellevue, WA 98005

EDR Inquiry # 3074151.3

Contact: Jason Cass

EDR® Environmental Data Resources Inc

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by EHS International, Inc. were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: Mason County Site
Address: 1100 West Dayton Airport Road
City, State, Zip: Shelton, WA 98584
Cross Street:
P.O. # 10200-01
Project: 10200
Certification # 5A64-4DE2-8A0D

Sanborn® Library search results
Certification # 5A64-4DE2-8A0D

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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EHS–International, Inc.

THURSTON COUNTY SITE
PHASE I ENVIRONMENTAL SITE ASSESSMENT
FINAL REPORT

Prepared for:
Mr. Jim Petrich
Integrus Architecture
117 South Main Street, Suite 100
Seattle, Washington 98104

Site Location:
20311 Hwy. 9 SW
Grand Mound, Washington 98531

Prepared by:
EHS – International, Inc.
13228 NE 20th Street, Suite 100
Bellevue, Washington 98005

July 24, 2011

THURSTON COUNTY SITE
PHASE I ENVIRONMENTAL SITE ASSESSMENT
20311 HIGHWAY 9 SW
GRAND MOUND, WASHINGTON 98531

FINAL REPORT

Prepared for:
Mr. Jim Petrich
Integrus Architecture
117 South Main Street, Suite 100
Seattle, Washington 98104

Prepared by:
EHS International, Inc.
13228 NE 20th Street, Suite 100
Bellevue, Washington 98005

July 24, 2011

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EXECUTIVE SUMMARY

EHS - International, Inc. (EHSI) prepared this Final Report to document a Phase I Environmental Site Assessment (ESA) of the Thurston County Site property (subject property) located in Grand Mound, Washington. Mr. Jim Petrich of Integrus Architecture requested the Phase I ESA to accomplish due diligence for a potential purchase of the property. Mr. Petrich gave EHSI authorization to proceed with the Phase I ESA project in October 2010. The address for the subject property is 20311 Highway 9 SW, Ground Mound, Washington 98531.

SITE OVERVIEW

The subject property includes a 209 acre irregularly-shaped Thurston County parcel. The subject property is currently occupied by a complex of buildings comprising the Maple Lane School.

ADJACENT PROPERTIES

To the north, the subject property borders Highway 9 SW and several residential structures. Undeveloped forest land extends to the east of the subject property. The subject property is bounded on the west by a large dairy farm. The subject property is bounded on the south by a slough and vacant pasture land.

SITE RECONNAISSANCE AND DATABASE SEARCH RESULTS

EHSI conducted an inspection of the subject property on June 24, 2011. There were no weather or access related limitations occurring during the inspection.

An Environmental Data Resources, Inc. (EDR) Database Search Report of the subject property for publicly available information contained in federal and state environmental databases was done to ASTM Standard search radii.

The subject property is listed on the CSCSL-NFA regulatory environmental database.

EHSI reviewed a Historical Investigation and Current Site Condition Summary Report for the Maple Lane School prepared on December 4, 2008 by HartCrowser (HartCrowser, 2008). That report describes a 6,000 gallon fiberglass heating oil UST installed in 1980 to furnish backup fuel to the steam plant boiler system. Following the reported loss of approximately 600 gallons of diesel fuel, the UST was removed in 1997. A small hole was present approximately 14 inches below the top of the UST and petroleum contaminated soils (PCS) were present at the bottom of the removal excavation. Approximately 40 cubic yards of PCS was removed and placed on-site for treatment. A soil boring was advanced at the former UST location and PCS was present from nine feet (bottom of excavation) to the water table at 30 feet.

The HartCrowser report notes that Nowicki and Associates, Inc. installed four groundwater monitoring wells in February of 1998 and began quarterly groundwater monitoring in March of 1998. However, no analytical test results were provided for this phase of groundwater testing. In 2000, personnel from Nowicki and Associates, Inc. noted a heavy oil sheen and strong diesel odors in a groundwater sample from a newly installed well.

HartCrowser installed five wellpoints to assess groundwater entering the slough adjacent to the south of the release area. They also sampled surface water and sediments from the

slough. The results of this sampling and testing demonstrated that the heating oil contaminants did not impact the slough.

To facilitate soil and groundwater amendment, HartCrowser injected approximately 950 gallons of hydrogen peroxide at the release area.

Subsequent groundwater monitoring established compliance with Washington Model Toxics Control Act (MTCA) Method A Groundwater Cleanup Levels and the subject property was granted a decision of No Further Action from Ecology on January 9, 2009.

A review of the EDR database search report, including sites listed in the orphan site summary identified no other sites with either documented releases of hazardous materials or facilities that manage hazardous materials in significant quantities.

CURRENT OPERATIONS

The subject property currently occupied by the Maple Lane School, a Department of Social and Health Service (DSHS) correctional facility.

FINDINGS

The subject property was developed with the existing administration building as a girl's reformatory in 1914. The facility was expanded to its present size and configuration in various phases during the 1960s, 1980s, and 1990s. The subject property is currently served with three above-ground storage tanks (ASTs) for motor vehicle fueling and heating oil.

A central steam plant on the southern portion of the subject property was historically supplied by an underground storage tank (UST) for heating fuel. The 6,000 gallon capacity diesel fuel UST was installed in 1980 and removed in 1997 along with 40 cubic yards of contaminated soil. Soil and groundwater amendment was done using hydrogen peroxide injections at the source area. Groundwater monitoring over the course of nine years demonstrated compliance with Model Toxics Control Act Method A Groundwater Cleanup Levels. The residual soil contamination was left in place to degrade under natural attenuation. After review of the cleanup and monitoring reports, the Washington State Department of Ecology (Ecology) granted the subject property a decision of No Further Action (NFA) on January 9, 2009. In light of the NFA decision by Ecology, the past release of heating oil near the central steam plant is not considered a REC for the property.

A motor vehicle fueling system was formerly used on the southern portion of the subject property. The system was reportedly served by USTs beneath a central dispenser island. The USTs and some contamination were reportedly removed in the late 1980s, however no reports or other documentation of the UST removal was provided for our review.

CONCLUSIONS

The historical on-site fuel storage and dispensing system presents a material threat of a release of petroleum products to the subject property subsurface and is therefore a REC for the subject property.

RECOMMENDATIONS

Based on our research in conducting this Phase I ESA, subsurface sampling and testing is required to assess subsurface environmental conditions at the former fueling system. EHSI is currently performing a Phase II Environmental Site Assessment of that area which will be forwarded under separate cover to this report.

1 INTRODUCTION

EHSI prepared this Final Report to document a Phase I ESA of property referred to here as the subject property. Mr. Jim Petrich of Integrus Architecture requested the Phase I ESA to fulfill environmental due diligence for a potential purchase of the subject property. Mr. Petrich gave EHSI authorization to proceed with the Phase I ESA project in October, 2010. The address for the subject property is 20311 Highway 9 SW, Grand Mound, Washington 98531 (Figure 1).

1.1 REPORT ORGANIZATION

This report consists of an executive summary, followed by sections which describe elements of EHSI's Phase I ESA. Two figures, a table, and three supporting appendices accompany this report. Figure 1 is the site location map and Figure 2 is the site plot plan. Appendix A provides select site photographs and Appendix B has a copy of the EDR database search report. Copies of documents from Ecology are included in Appendix C.

1.2 PHASE I ESA PURPOSE

The purpose of the Phase I ESA is to gather and review historical and current land use information from various sources to identify RECs on or near the subject property. RECs can impact the value of the property and impact the cost and schedule for site redevelopment.

1.3 PHASE I ESA INVOLVED PARTIES

Mr. Jim Petrich of Integrus Architecture selected EHSI to conduct a Phase I ESA on the subject property. Integrus Architecture is working behalf of the Washington State Department of Corrections which is considering purchasing the subject property.

2 PHASE I ESA SCOPE OF WORK

The scope of services for the subject property Phase I ESA included the following subtasks:

- Review readily available source information regarding current uses of the property and its surroundings from Thurston County Assessor records, and compile information obtained during interviews of local agencies.
- Review readily available source information with respect to the historical uses of the property including:
    - Historical aerial photographs from EDR aerial photo package (EDR 2011) and map websites;
    - Polk City Directories – Not available;
    - Historical Kroll and Sanborn Atlas Collections for Thurston County, Washington from the Olympia Public Library;
- Review federal and state environmental database records for properties with known or suspected environmental liability from the EDR regulatory database records search report.
- Interview both past and present available subject property owners.
- Interview available neighboring property owners.
- Conduct a detailed visual site reconnaissance of the property and cursory reconnaissance of the immediate site vicinity to observe existing conditions.

- Evaluate whether environmental conditions exist that might result in on-site migration from off-site sources.
- Evaluate whether environmental conditions exist that might result in off-site migration of on-site contaminants (if any) by air emissions, groundwater, or other media.

The content of this report follows the 2005 Revised Version of the ASTM guidance on "Standard Practice for Environmental Site Assessment: Phase I Environmental Site Assessment Process" (Designation E 1527-05) and USEPA AAI Rule (40 CFR, Part 312). The contents of this report satisfy the agreed upon scope of services as defined by our October 10, 2010 proposal from EHSI to Integrus Architecture and the above-cited ASTM Standard.

RECs are defined in ASTM Standard E 1527-05 (2005) as "the presence or likely presence of regulated hazardous or dangerous wastes and/or substances, including petroleum products, under conditions that indicate an existing release, a past release, or a material threat of a release into the structures of the property or into the ground, groundwater, or surface water of the property."

2.1 PROPERTY LEGAL DESCRIPTION

The Thurston County parcel tax ID number for the subject property is 13514210000. The property legal description is as follows:

14-15-3W PTN W2 DESC 88/451 BAP 599.81F S OF N4COR ON SWLY.

3 SITE OVERVIEW

The subject property includes a 209.52 acre irregularly-shaped Thurston County parcel. The subject property is currently occupied by the grounds and buildings of the Maple Lane School (Figure 2).

3.1 ADJACENT PROPERTIES

To the north, the subject property borders Highway 9 SW and several residential structures. Undeveloped forest land extends to the east of the subject property. The subject property is bounded on the west by a large dairy farm. The subject property is bounded on the south by a slough and vacant pasture land.

4 PHYSICAL SETTING

The subject property is situated on level ground at an elevation of 160 feet above mean sea level (Figure 1).

4.1 FLOOD PLAIN

The subject property is located outside of the US Federal Emergency Management Agency 100-year and 500-year flood zones.

4.2 SENSITIVE RECEPTORS

There are no documented sensitive receptors within a 1,000-foot radius of the subject property.

4.3 GEOLOGY

The dominant geological feature of the landscape in this portion of the Thurston County is alluvium. The alluvium is made up of predominantly layers of sand, gravel, cobbles and boulders. The alluvium was deposited by high-energy streams flowing in outwash channels from the wasting Pleistocene glaciers farther to the north (Jones 1998).

4.4 SOILS

The soil type underlying the subject property is loamy sand regionally mapped as Spanaway. This soil type has Class B, moderate infiltration characteristics typical of soils that consist predominately of well drained sandy loam soils with moderately coarse textures.

4.5 SURFACE WATER AND WETLANDS

There are no documented wetlands within subject property. No surface water bodies exist within the subject property. The Chehalis River lies approximately 500 yards to the south of the subject property.

4.6 WATER WELLS

There are twenty documented water supply wells within a 1/2-mile radius of the subject property. Two of the water supply wells are located on the subject property.

4.7 GROUNDWATER

Hydrological conditions including rainfall amounts, nearby streams, or other surface bodies of water can provide pathways for the spread of contamination. Fate transport routes are those pathways which contamination would utilize to flow into a property. These routes are generally topographically controlled, but subsurface structure (faults); lithology (gravel, sands, or clays and their porosity and permeability) can also effect the migration of contamination. Often underground cables or storm sewer pipes act as conduits for contamination (depending on their proximity to the spill event).

Principal groundwater aquifers in the subject property area generally occur in sands and gravels as unconfined aquifers. Groundwater is present at the subject property at a depth of approximately 30 feet below ground surface. Based on surface topography, the likely direction of shallow groundwater flow beneath the subject property is interpreted to be south, following the site and surrounding area topographic slope.

4.8 POTABLE WATER SERVICES

Potable water service to the subject property is supplied by two on-site wells.

4.9 SEWER

Sewer services for the subject property consist of an on-site pretreatment system that is tied to the municipal system that serves Grand Mound.

4.10 DITCH FEATURES

No ditches were observed on the subject property.

4.11 STORMWATER SEWERS

No stormwater catch basins were observed on the subject property.

4.12 ELECTRICAL SUPPLY/TRANSFORMERS

Puget Sound Energy provides electrical services to the subject property. Several newer pad-mounted main-service electrical transformers were observed on the subject property.

5 RESULTS OF THE SITE INVESTIGATION

5.1 SITE INSPECTION DATE

Personnel from EHSI inspected the subject property on June 24, 2011. No weather or access related limitations occurred during the inspection. Assessment for the presence of ACM, lead-based paint, and PCBs within light ballasts is beyond the scope of this Phase I ESA.

5.2 INTERIOR AREAS

Several of the buildings were occupied by students and were not accessible for review. The classroom buildings on the eastern portion of the subject property had sheet vinyl and vinyl tile floors, sheetrock walls, and suspended acoustic ceiling panels.

5.3 CHEMICAL STORAGE

Used oil from fleet maintenance is stored in three 55-gallon drums that are stored on secondary containment pans beneath a shed roof on the southwest quadrant of the subject property (Appendix A, Photograph 7). No leaks or spills were noted on or around the drums. The full drums are taken to a recycling facility for lawful disposal.

5.4 RADON

The western region of the State of Washington is generally considered to have a relatively low potential for significant radon emissions. The US Environmental Protection Agency National Radon Database (EPA Radon Database) is a compilation of the EPA/State Residential Radon Survey and the National Radon Survey. The listed EPA Radon Database average indoor measurement readings for radon in this portion of Thurston County, Washington (Zip Code 98531) ranged from 0.840 to 1.267 pCi/L. There were five recorded measurements within the zip code and the readings averaged 1.267 pCi/L. Based on regional geologic conditions and published regional radon testing results, EHSI believes that there is a very low probability that radon emissions present a significant environmental issue at the subject property.

5.5 ABOVE GROUND STORAGE TANKS (ASTs)

The EHSI Inspector observed two heating fuel and one motor fuel ASTs within the subject property. Two of the ASTs with capacities of 6,000 gallons and 4,000 gallons are located on the eastern and southwestern sides of the central steam plant on the southern portion of the subject property (Figure 2) and supply the steam boiler (Appendix A, Photograph 4). Both of these ASTs contain diesel and have double-wall construction. The third AST has an overall capacity of 2,000 gallons and is divided into two chambers which store unleaded gasoline (1,500 gallons) and diesel (500 gallons) (Appendix A, Photograph 5). The motor fuel AST is double-walled construction and is connected to two fuel dispensers. The motor fuel AST is located on the southwestern portion of the subject property (Figure 2). No evidence of leaks to spills was observed on or around the subject property ASTs.

5.6 UNDERGROUND STORAGE TANKS (USTs)

A 6,000 gallon capacity fiberglass UST was installed to serve the steam plant boiler system in 1980 (Figure 2). After the reported loss of 600 gallons of fuel, that UST was removed in 1997 and a small hole was discovered approximately 14 inches from the top of the UST. Additional discussions related to the operation and removal of that UST is provided in the Environmental Assessment Records Review section of this report. According to the facility manager, Mr. Gary Avery, USTs for fleet fueling were formerly located adjacent to the south of the commissary building (Figure 2). Mr. Avery related that the USTs were removed in the late 1980s. He did not know the number, capacities, etc. of the USTs.

5.7 GENERAL CONDITIONS OF EXTERIOR AREAS

The EHSI site inspector documented the exterior areas of the subject property to be in good condition. There was no observed chemical surface staining or evidence of chemical spill within the inspected exterior areas of the subject property (Appendix A, photographs 1 and 2).

5.8 CONTROLLED WASTE STORAGE AREA

Numerous solid waste dumpsters were observed throughout the subject property. The dumpsters are maintained by LeMay Disposal and no evidence of chemical disposal was observed on or around the dumpsters.

5.9 DISCOLORED SOILS OR STRESSED VEGETATION

During inspection, the EHSI inspector found no discolored soils or stressed vegetation within the subject property.

6 PHASE I ESA HISTORICAL RESEARCH

A property reconnaissance and review of available historical resources including aerial photographs, Sanborn fire insurance maps, and Kroll atlas collections were evaluated to assess for current and past land uses that may present potential environmental liabilities of the subject property.

6.1 AERIAL PHOTOGRAPHS

EHSI reviewed aerial photographs of the subject property and surrounding properties for the years 1941, 1951, 1956, 1968, 1975, 1980, 1982, 1990, 1992, and 2006.

The 1941 aerial photograph shows the current administration building and steam plant buildings in their present configurations. Several school buildings are visible on the eastern portion of the subject property with the remainder appearing vacant. Surrounding land use appears as vacant farmland. The existing dairy farm is present to the west.

In the 1951 and 1956 photos, several buildings have been added to the eastern portion of the subject property. Surrounding land use remains agricultural.

The 1968 aerial photo shows a larger gym building added to the eastern half of the subject property.

No changes are noted for the 1975 aerial photo.

Several structures, including the current maintenance building have been added to the southwestern portion of the subject property by 1982. The existing residences have been constructed to the north of the subject property.

No significant changes to land use are seen in the 1990 and 1992 aerial photos.

The existing classroom buildings are visible on the 2006 aerial photo. The existing parking lot has been added on the northern portion of the subject property.

No evidence of landfills or large chemical storage facilities, such as bulk terminals, was found during review of the aerial photographs covering the subject property. Copies of the aerial photographs are contained in Appendix B.

6.2 SANBORN FIRE INSURANCE MAPS

No Sanborn fire insurance maps exist for the subject property (unmapped) and its environs (Appendix B).

6.3 KROLL ATLASES

A historical Kroll Atlas was reviewed for the year 1982. That atlas depicted Maple Lane Girl's School as the fee owner.

6.4 POLK CITY DIRECTORIES

Polk City Directories were not available for the vicinity of the subject property.

6.5 THURSTON COUNTY PERMIT REVIEW

EHSI reviewed the Thurston County on-line building department for possible permits (e.g., environmental remediation, UST removal, hazardous material storage, Haz-Mat abatement, etc.) issued for the subject property. No relevant environmental permits were on file for the subject property.

6.6 HISTORICAL ASSESSOR TAX RECORDS

Historical Thurston County tax assessor records simply note the legal description and State of Washington Maple Lane School as legal owner.

6.7 FIRE DEPARTMENT

The Thurston County Fire Marshal provides fire and chemical spill (Haz-Mat) protection services to the subject property. EHSI spoke with Mr. Jeff Martsen of the Thurston County Fire Marshal's office on June 20, 2011. Mr. Martsen related that there are no hazardous materials incident reports or UST permits on file for the subject property.

6.8 INTERVIEWS

As part of the Phase I ESA process, the EHSI Inspector conducted the following interviews:

Mr. Gary Avery, the current subject property maintenance manager. Mr. Avery has been working at the subject property for over 30 years. According to Mr. Avery:

- A heating oil UST was removed from a location near the steam plant and cleanup actions have brought that portion of the subject property into compliance;
- The steam plant is currently supplied by two ASTs that store diesel fuel and no spills or releases are associated with the ASTs. Mr. Avery related that the steam plant was formerly supplied by a wood-pellet fuel source;
- The facility fleet vehicles are supplied fuel from the on-site double-chamber AST which stores unleaded and diesel motor fuel;

- ❖ Fleet fueling was formerly done at a location immediately to the south of the commissary building. The fuel was stored in USTs with a motor fuel dispenser located directly above the tanks. He related that the USTs and some contamination were removed in the 1980s. However, Mr. Avery did not have any UST Site Assessment, cleanup reports, or other documentation regarding the former fleet fueling UST location;
- ❖ Mr. Avery advised us that the school residents and support staff are moving to the nearby Green Hill School.

6.9 INTERVIEW BONAFIDE PROSPECTIVE PURCHASER

At the present time, the subject property is not under a purchase agreement and there is no bonafide prospective purchaser.

6.10 TITLE DOCUMENTATION

EHSI was not provided a chain-of-title document for the subject property.

7 DATA GAPS

The absence of chain-of-title documentation presents a data gap for the subject property. This data gap is not expected to effect the conclusions of the Phase I report.

8 ENVIRONMENTAL ASSESSMENT RECORDS REVIEW

EHSI contracted EDR to carry out a review of various state and federal regulatory databases and records for the subject property. In addition, EDR searched for sites located within specific search distances listed in ASTM Standard E1527-05, Standard Practice for Environmental Assessment and the USEPA AAI Standard. The findings of the EDR Database Review are presented in the subsequent sections. A description of the databases searched and a copy of the EDR database search document are provided in Appendix B.

8.1 DATABASE SEARCH RESULTS

Table 1 provides a summary of the key Federal and State of Washington databases searched by EDR:

TABLE 1: REGULATORY DATABASE SOURCE LISTS

AGENCY	LIST ACRONYMS/ID[A]	DESCRIPTION	SEARCH RADIUS	NUMBER OF SITES LOCATED
USEPA	NPL	National Priority List	1 mile	0
USEPA	CORRACTS	RCRA Corrective Actions	1 mile	0
Ecology	HSL/SHWS	Hazardous Sites List/State Hazardous Waste Sites	1 mile	0
USEPA	CERCLIS/NFRAP	Sites Currently Under Review	½ mile	0
Ecology	CSCSL/CSCSL-NFA	Confirmed and Suspected Contaminated Sites List	½ mile	1
USEPA	TSD	Permitted RCRA Treatment, Storage, and Disposal Facilities	1 mile	0
Ecology	LUST	Leaking Underground Storage Tank Sites	½ mile	0
Ecology	ICR/VCP	Independent Cleanup Report/Voluntary Cleanup Program	½ mile	0

Ecology	SWLF	Permitted Solid Waste Landfills, Incinerators, or Transfer Stations	½ mile	1
Ecology	UST	Regulated Underground Storage Tanks	¼ mile	0
USEPA	RCRA-LQG	RCRA Registered Large Quantity Generators of Hazardous Waste	¼ mile	0
USEPA	RCRA-SQG	RCRA Registered Small Quantity Generators of Hazardous Waste	¼ mile	0
USEPA	RCRA-CESQG	RCRA Registered Conditionally Exempt Small Quantity Generators of Hazardous Waste	¼ mile	0
USEPA	ERNS	Emergency Response Notification Systems	Target Property	0
Ecology	SPILLS	Reported Spills	Target Property	0

RCRA = Resource Conservation and Recovery Act.
NFA = No Further Action.
Ecology = Washington State Department of Ecology.
[A]See EDR Report in Appendix B for definitions of database acronyms.

8.2 SUBJECT PROPERTY

The subject property is listed on the CSCSL-NFA regulatory environmental database.

EHSI reviewed a Historical Investigation and Current Site Condition Summary Report for the Maple Lane School prepared on December 4, 2008 by HartCrowser (HartCrowser, 2008). That report describes a 6,000 gallon fiberglass heating oil UST installed in 1980 to furnish backup fuel to the steam plant boiler system. Following the reported loss of approximately 600 gallons of diesel fuel, the UST was removed in 1997. A small hole was present approximately 14 inches below the top of the UST and petroleum contaminated soils (PCS) were present at the bottom of the removal excavation. Approximately 40 cubic yards of PCS was removed and placed on-site for treatment. A soil boring was advanced at the former UST location and PCS was present from nine feet (bottom of excavation) to the water table at 30 feet.

The HartCrowser report notes that Nowicki and Associates, Inc. installed four groundwater monitoring wells in February of 1998 and began quarterly groundwater monitoring in March of 1998. However, no analytical test results were provided for this phase of groundwater testing. In 2000, personnel from Nowicki and Associates, Inc. noted a heavy oil sheen and strong diesel odors in a groundwater sample from one of the newly installed wells.

HartCrowser installed five wellpoints to assess groundwater entering the slough adjacent to the south of the release area. They also sampled surface water and sediments from the slough. The results of this sampling and testing demonstrated that the heating oil contaminants did not impact the slough.

To facilitate soil and groundwater amendment, HartCrowser injected approximately 950 gallons of hydrogen peroxide at the release area.

Subsequent groundwater monitoring establish compliance with Washington Model Toxics Control Act (MTCA) Method A Groundwater Cleanup Levels and the subject property was granted a decision of No Further Action from Ecology on January 9, 2009. Copies of select portions of the HartCrowser report and the Ecology NFA letter are included in Appendix C.

8.3 SURROUNDING PROPERTIES

A review of the EDR database search report, including sites listed in the orphan site summary identified no sites with either documented releases of hazardous materials or facilities that manage hazardous materials in significant quantities.

9 PHASE I ESA CONCLUSIONS

The subject property was developed with the existing administration building as a girl's reformatory in 1914. The facility was expanded to its present size and configuration in various phases during the 1960s, 1980s, and 1990s. The subject property is currently served with three above-ground storage tanks (ASTs) for motor vehicle fueling and heating oil.

A central steam plant on the southern portion of the subject property was historically supplied by an underground storage tank (UST) for heating fuel. The 6,000 gallon capacity diesel fuel UST was installed in 1980 and removed in 1997 along with 40 cubic yards of contaminated soil. Soil and groundwater amendment was done using hydrogen peroxide injections at the source area. Groundwater monitoring over the course of nine years demonstrated compliance with Model Toxics Control Act Method A Groundwater Cleanup Levels. The residual soil contamination was left in place to degrade under natural attenuation. After review of the cleanup and monitoring reports, the Washington State Department of Ecology (Ecology) granted the subject property a decision of No Further Action (NFA) on January 9, 2009. In light of the NFA decision by Ecology, the past release of heating oil near the central steam plant is not considered a REC for the property.

A motor vehicle fueling system was formerly used on the southern portion of the subject property. The system was reportedly served by USTs beneath a central dispenser island. The USTs and some contamination were reportedly removed in the late 1980s, however no reports or other documentation of the UST removal was provided for our review.

EHSI has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-05 of the subject property at 20311 Highway 9 SW, Grand Mound, Washington. Any exceptions to, or deletions from, this practice are described in Section 11 of this report. The historical on-site fleet fuel storage and dispensing system presents a material threat of a release of petroleum products to the subject property subsurface and is therefore a REC for the subject property.

The ASTM Standard for Phase I Environmental Site Assessments specifically excludes the sampling and identification of ACM, lead-based paint, and PCBs-containing lighting ballasts. Therefore, this assessment did not include testing, verification, or identification of those potential environmental hazards.

10 RECOMMENDATIONS

Based on our research in conducting this Phase I ESA, subsurface sampling and testing is required to assess subsurface environmental conditions at the former fueling system. EHSI is currently performing a Phase II Environmental Site Assessment of that area which will be forwarded under separate cover to this report.

11 DEVIATIONS

No site-specific conditions were encountered that required deviation from the scope of services addressed in Section 2.2 of this report.

12 REFERENCES

ASTM International. 2005. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. American Society for Testing and Materials. ASTM E 1527-05, 35p.

Ecology. 2004. Dangerous Waste Regulations – Chapter 173-303 WAC. Washington State Department of Ecology publication number 92-91.

Ecology. 2007. Model Toxics Control Act (MTCA) Cleanup Regulation—Chapter 173-340 WAC. Washington State Department of Ecology, Toxics Cleanup Program, Publication Number 94-06. Updated October 12, 2007.

Ecology. 2011. Washington State Department of Ecology Well Log Database. Visited Ecology website on July 1, 2011; http://apps.ecy.wa.gov/welllog/mapsearch/.

EDR. 2011a. EDR Radius Map™ Report with GeoCheck® for the subject property, 20311 Highway 9 SW, Centralia, Washington 98531. Environmental Data Resources, Inc., Inquiry No. 3082628.2s, June 7, 2011 (see Appendix B).

EDR. 2011b. EDR Aerial Photo Decade Package for the subject property, 20311 Highway 9 SW, Centralia, Washington 98531. Environmental Data Resources, Inc., Inquiry No. 3082628.4, June 1, 2011.

EDR. 2011c. Certified Sanborn® Map Report for the subject property, 20311 Highway 9 SW, Centralia, Washington 98531. Environmental Data Resources, Inc., Inquiry No. 3082628.6, June 1, 2011.

HartCrowser, Inc. December 4, 2008, Maple Lane School Historical Investigation and Current Site Conditions Summary (Revised).

Avery, Gary, personal interview on June 24, 2011.

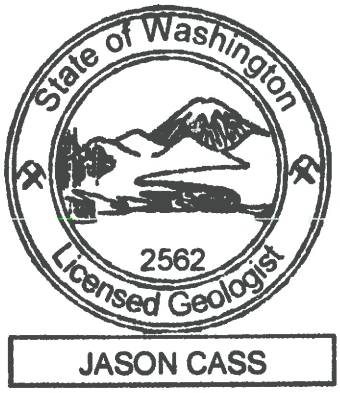
Google. 2011. 2011 aerial photograph covering the subject property and surrounding area. Visited Google Maps website on June 20, 2011.

Jones, M. A.; 1998, "Surficial Hydrogeologic Units of the Puget Sound Aquifer System, Washington"; United States Geological Survey Professional Paper 1424-C;

USGS. 1992. Centralia, Washington 7.5-minute topographic quadrangle map. U.S. Geological Survey, Denver, Colorado

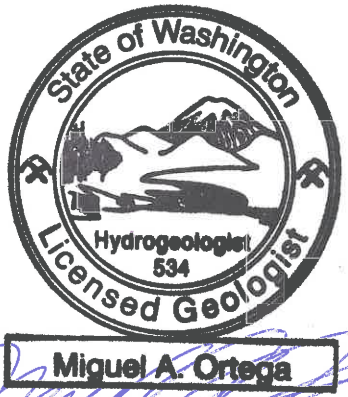
13 SIGNATURE

This Phase I ESA Final Report was prepared by the undersigned. I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of this part [40 CFR Part 312]. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.



Jason Cass — Date

Jason Cass
Washington Licensed Geologist



Miguel Ortega — July 24, 2011 — Date

Miguel Ortega
Washington Licensed Geologist

14 LIMITATIONS

The conclusions presented in report are professional opinions based upon our visual observations and available public records. This report is intended exclusively for the purpose outlined herein, at the site location indicated. This report is for the sole use of our client, Integrus Architecture. Opinions and conclusions presented herein apply to site conditions existing at the time of execution of our Phase I Environmental Site Assessment and do not necessarily apply to future changes or other prior conditions at the site of which EHSI is not aware and has not had the opportunity to evaluate. The scope of services performed in execution of this Phase I Environmental Site Assessment may not be appropriate to satisfy the needs of other users, and any use or re-use of the document, its findings, conclusions, or recommendations presented are at the sole risk of the said user.

EHSI's objective is to perform our work with care, exercising the customary thoroughness and competence of environmental consulting professionals in the relevant disciplines. Furthermore, we carried out our services in accordance with the standard for professional services by a consulting firm at the time those services were rendered. It is important to recognize that even the most comprehensive scope of services may fail to detect environmental liability on a particular site. Therefore, EHSI cannot act as insurers and cannot "certify or underwrite" that a site is totally free of environmental liability. In addition, no expressed or implied representation or warranty is included or intended in our report except that our work was performed within the limits prescribed by our client, and with the customary thoroughness and competence of our profession.

FIGURES

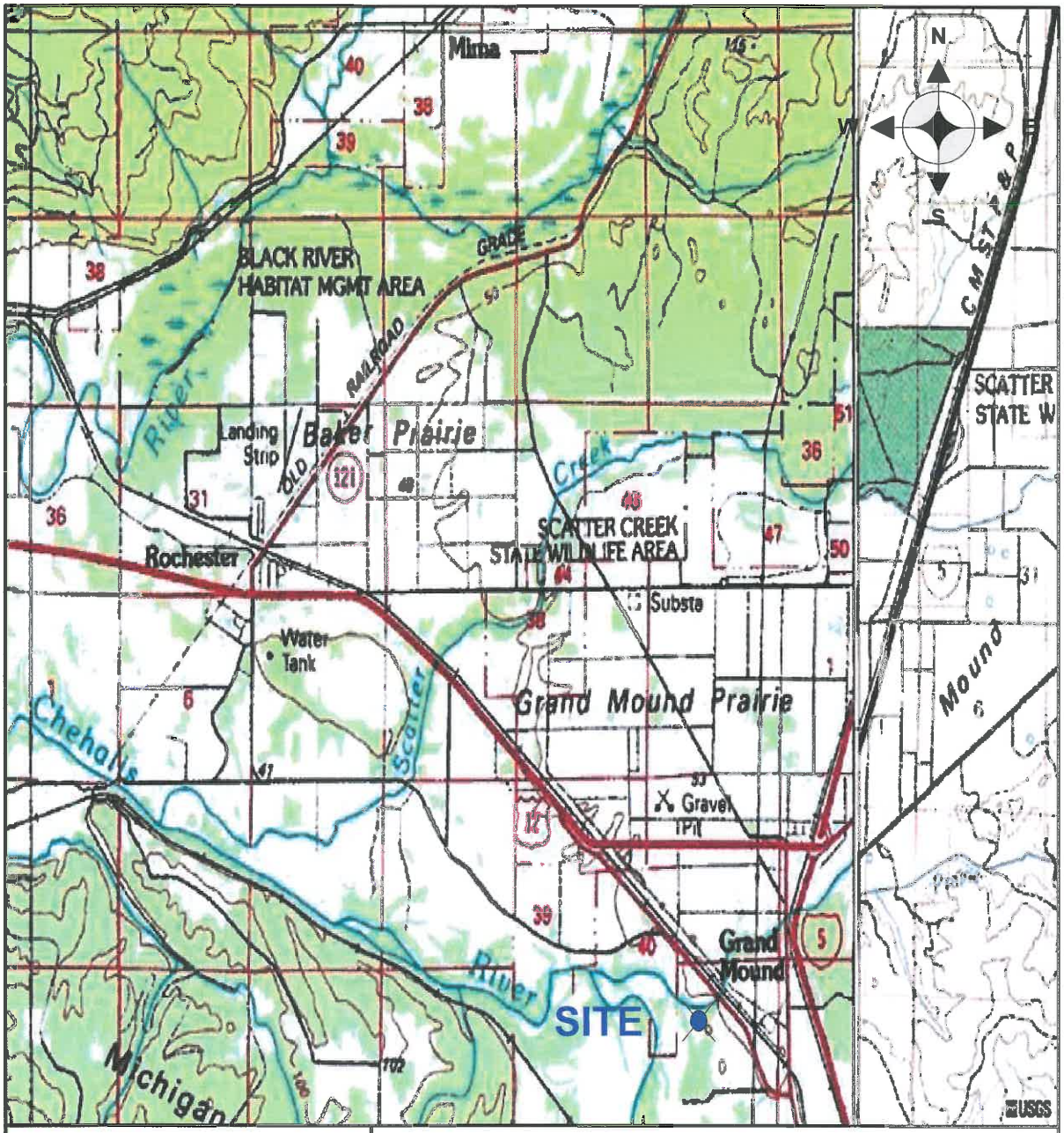
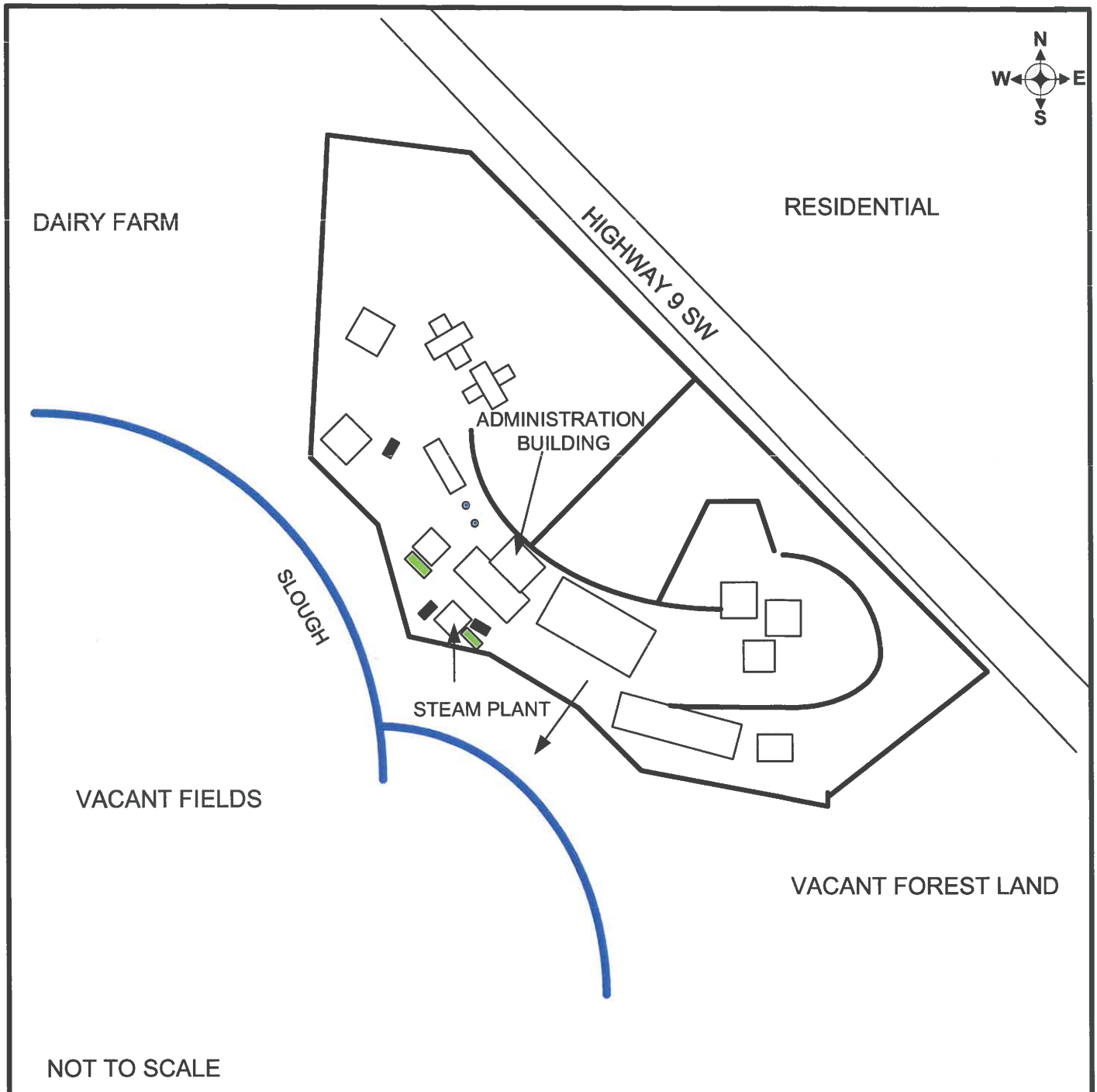


FIGURE 1
THURSTON COUNTY SITE
PHASE I ENVIRONMENTAL SITE ASSESSMENT
20311 HWY. 9 SW
GRAND MOUND, WASHINGTON 98531

SITE LOCATION MAP

Reference: US Geological Survey
Essex, Washington
7.5 Minute Quadrangle
Photo revised 1992

EHS International, Inc.	July 2011



EXPLANATION

APPROXIMATE LIMITS OF SUBJECT PROPERTY

WATER SUPPLY WELL

FORMER UST LOCATION

EXISTING AST LOCATION

INFERRED GW FLOW DIRECTION

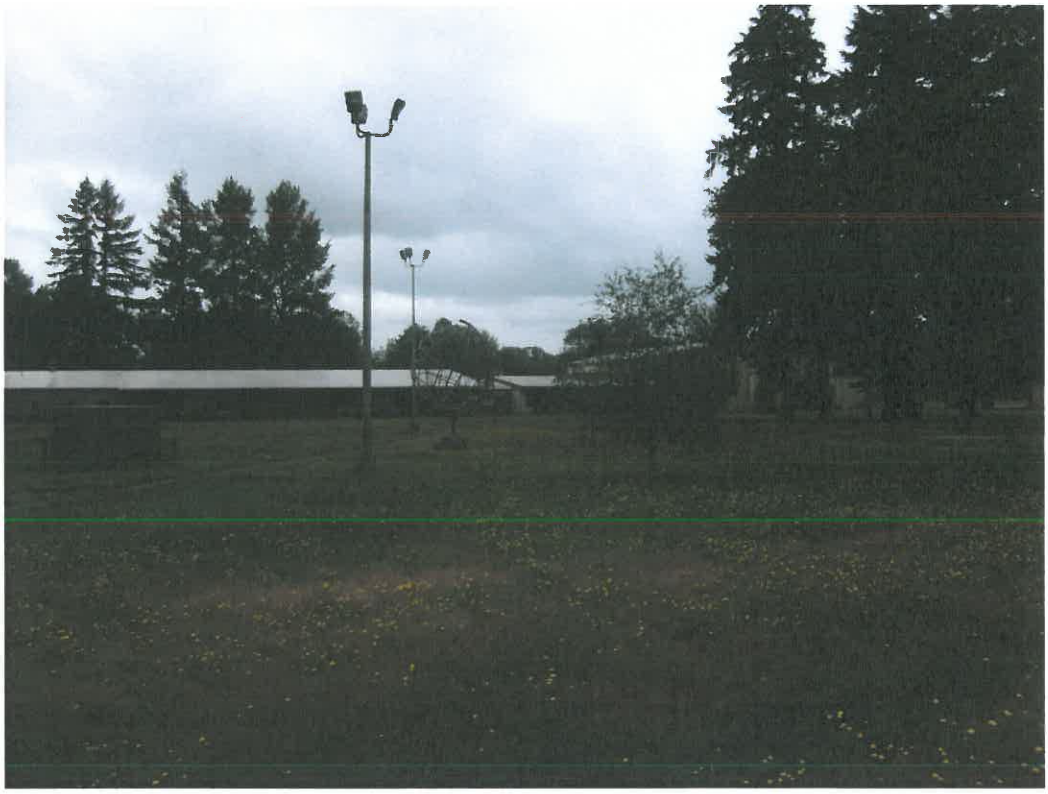
FIGURE 2

THURSTON COUNTY SITE
PHASE I ENVIRONMENTAL SITE ASSESSMENT
20311 HIGHWAY 9 SW
GRAND MOUND, WASHINGTON 98531

SITE PLOT PLAN

EHS International, Inc.	July 2011

APPENDIX A: SITE PHOTOGRAPHS



Photograph 1: View looking south across the eastern portion of the subject property.

Photograph 2: View looking westward across proposed new construction area.

Photograph 3: Central steam plant on southern portion of subject property.

Photograph 4: Diesel fuel AST on west side of steam plant building.

Photograph 5: View of fleet fueling AST on southwestern portion of subject property.

Photograph 6: Asphalt patching indicates former fleet fueling USTs location.

Photograph 7: Waste oil drums on secondary containment pans located under shed on southwest quadrant of subject property.

APPENDIX B: EDR DATABASE SEARCH DOCUMENT

Maple Lane School
20311 Highway 9 SW
Centralia, WA 98531

Inquiry Number: 3082628.2s
June 07, 2011

The EDR Radius Map™ Report with GeoCheck®

Prepared using the EDR FieldCheck® System

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of the environmental records was conducted by Environmental Data Resources, Inc. (EDR). EHS INTERNATIONAL, INC. used the EDR FieldCheck System to review and/or revise the results of this search, based on independent data verification by EHS INTERNATIONAL, INC.. The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

20311 HIGHWAY 9 SW
CENTRALIA, WA 98531

COORDINATES

Latitude (North):	46.792500 - 46° 47' 33.0"
Longitude (West):	123.028400 - 123° 1' 42.2"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	497832.5
UTM Y (Meters):	5181888.0
Elevation:	158 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	46123-G1 ROCHESTER, WA
Most Recent Revision:	1993

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	2005, 2006
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No sites were identified in following databases.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites

EXECUTIVE SUMMARY

NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROL..... Sites with Institutional Controls

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent NPL

HSL..... Hazardous Sites List

State- and tribal - equivalent CERCLIS

CSCSL..... Confirmed and Suspected Contaminated Sites List

State and tribal leaking storage tank lists

LUST..... Leaking Underground Storage Tanks Site List
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST..... Underground Storage Tank Database
AST..... Aboveground Storage Tank Locations

INDIAN UST..... Underground Storage Tanks on Indian Land
FEMA UST..... Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

INST CONTROL..... Institutional Control Site List

State and tribal voluntary cleanup sites

INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS..... Brownfields Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
ODI..... Open Dump Inventory
SWTIRE..... Solid Waste Tire Facilities
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL..... Clandestine Drug Labs
CDL..... Clandestine Drug Lab Contaminated Site List
HIST CDL..... List of Sites Contaminated by Clandestine Drug Labs
US HIST CDL..... National Clandestine Laboratory Register

Local Land Records

LIENS 2..... CERCLA Lien Information
LUCIS..... Land Use Control Information System

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System
SPILLS..... Reported Spills

Other Ascertainable Records

RCRA-NonGen..... RCRA - Non Generators
DOT OPS..... Incident and Accident Data
DOD..... Department of Defense Sites
FUDS..... Formerly Used Defense Sites
CONSENT..... Superfund (CERCLA) Consent Decrees
ROD..... Records Of Decision
UMTRA..... Uranium Mill Tailings Sites

MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
UIC	Underground Injection Wells Listing
MANIFEST	Hazardous Waste Manifest Data
DRYCLEANERS	Drycleaner List
NPDES	Water Quality Permit System Data
AIRS	Washington Emissions Data System
Inactive Drycleaners	Inactive Drycleaners
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
FINANCIAL ASSURANCE	Financial Assurance Information Listing
COAL ASH	Coal Ash Disposal Site Listing
COAL ASH DOE	Sleam-Electric Plan Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants	EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Department of Ecology's Solid Waste Facilities Handbook.

An online review and analysis by EHS INTERNATIONAL, INC. of the SWF/LF list, as provided by EDR, and dated 12/14/2010 has revealed that there is 1 SWF/LF site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
GRAND MOUND WWTP	20248 GRAND MOUND WAY S	NNE 1/8 - 1/4 (0.145 mi.)	1	7

State and tribal voluntary cleanup sites

VCP: Sites that have entered either the Voluntary Cleanup Program or its predecessor Independent Remedial Action Program.

An online review and analysis by EHS INTERNATIONAL, INC. of the VCP list, as provided by EDR, and dated 01/25/2011 has revealed that there is 1 VCP site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MAPLE LANE SCHOOL	***20311 OLD HWY 9 SW***	***NW 1/4 - 1/2 (0.454 mi.)***	***3***	***8***

ICR: These are remedial action reports Ecology has received from either the owner or operator of the site. These actions have been conducted without department oversight or approval and are not under an order or decree.

An online review and analysis by EHS INTERNATIONAL, INC. of the ICR list, as provided by EDR, and dated 12/01/2002 has revealed that there is 1 ICR site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MAPLE LANE SCHOOL	***20311 OLD HWY 9 SW***	***NW 1/4 - 1/2 (0.454 mi.)***	***3***	***8***

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

ALLSITES: Information on facilities and sites of interest to the Department of Ecology.

An online review and analysis by EHS INTERNATIONAL, INC. of the ALLSITES list, as provided by EDR, and dated 02/08/2011 has revealed that there are 3 ALLSITES sites within approximately 0.5 miles of the target property.

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
JAMES ROAD DAIRY LLC	*7049 JAMES RD SW*	*NNW 1/8 - 1/4 (0.234 mi.)*	*2*	*7*
MAPLE LANE SCHOOL	*20311 OLD HWY 9 SW*	*NW 1/4 - 1/2 (0.454 mi.)*	*3*	*8*
1940 DESOTO DRUG LAB	*20428 GRAND MOUND WAY*	*ESE 1/4 - 1/2 (0.458 mi.)*	*4*	*11*

CSCSL NFA: The data set contains information about sites previously on the Confirmed and Suspected Contaminated Sites list that have received a No Further Action (NFA) determination. Because it is necessary to maintain historical records of sites that have been investigated and cleaned up, sites are not deleted from the database when cleanup activities are completed. Instead a No Further Action code is entered based upon the type of NFA determination the site received.

An online review and analysis by EHS INTERNATIONAL, INC. of the CSCSL NFA list, as provided by EDR, and dated 04/26/2011 has revealed that there is 1 CSCSL NFA site within approximately 0.5 miles of the target property.

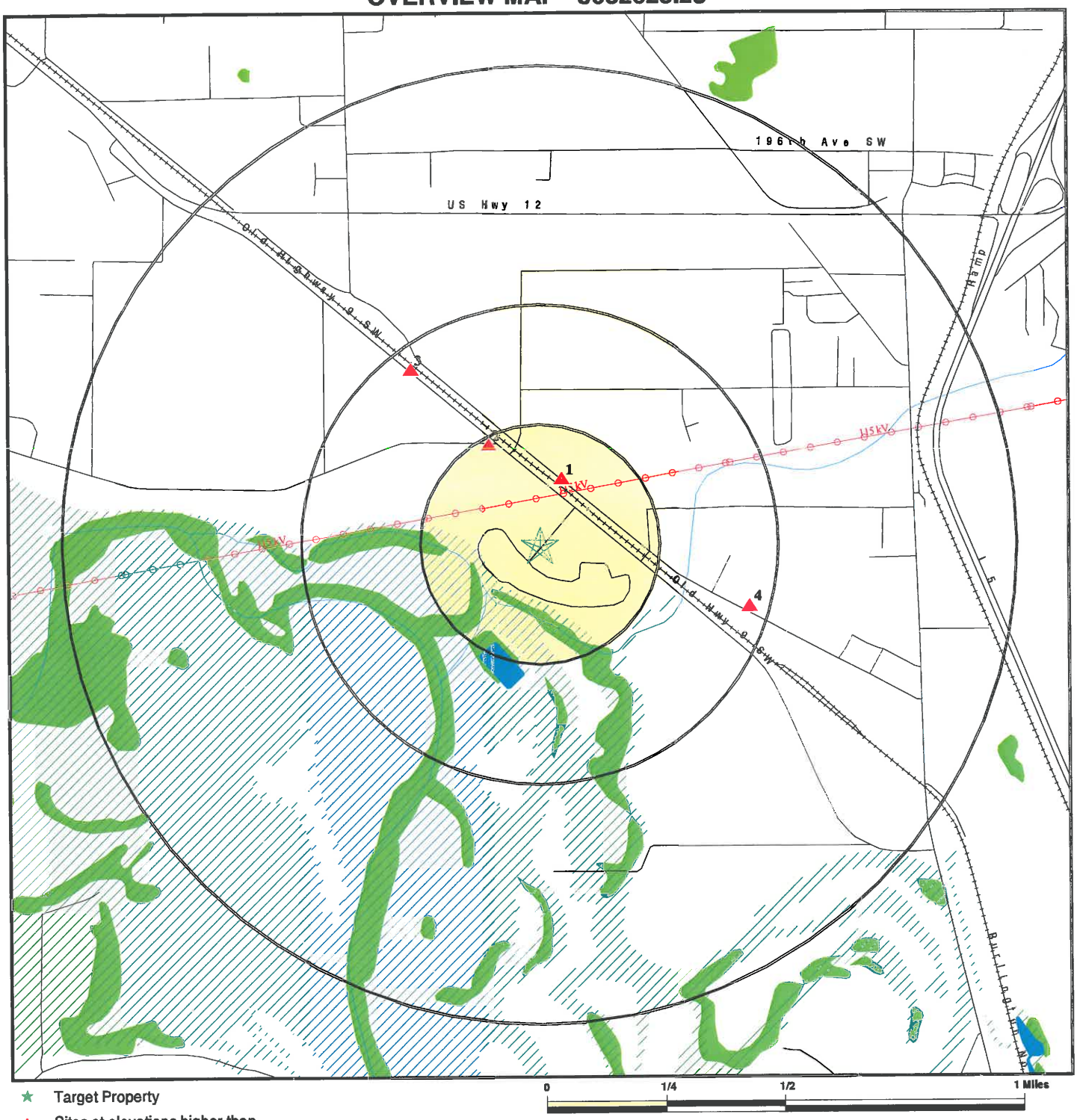
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MAPLE LANE SCHOOL	*20311 OLD HWY 9 SW*	*NW 1/4 - 1/2 (0.454 mi.)*	*3*	*8*

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 27 records

Site Name	Database(s)
TRUCK ACCESSORIES GROUP INC PACE EDWARDS	FINDS, CSCSL, ALLSITES
SUBURBAN PROPANE CENTRALIA 2	FINDS, ALLSITES
GOLDEN UNICORN FAMILY TRUST	CSCSL, ALLSITES
CENTRALIA CITY MUNI SW	ALLSITES, NPDES
BRADLEY ENTERPRISES INC	ALLSITES
SUBURBAN PROPANE CENTRALIA	FINDS, ALLSITES
AA AUTO SALES	ALLSITES
PIECES FAMILY TRUST	CSCSL, ALLSITES
CONOCO CO	ALLSITES, CSCSL NFA, SPILLS, VCP, NPDES
PRAIRIE CREEK BRIDGE REPLACEMENT	ALLSITES
BRIARWOOD FARMS & NEST BEST EGG	ALLSITES, UST
SCATTER CREEK REST AREA ONSITE	ALLSITES
WA DOT E I5 MILEPOST 87.5	CSCSL, ALLSITES
LARRYS CHEVRON UST 438967	ALLSITES, UST
INDEPENDENCE ROAD	ALLSITES
FRISIA DAIRY & CREAMERY LLC	ALLSITES
GRAND MOUND CARDLOCK	CSCSL, ALLSITES, CSCSL NFA, VCP, FINANCIAL ASSURANCE
DRAGT DAIRY	FINDS, ALLSITES
MAPLE LANE JR SR HIGH SCHOOL	FTTS
MAPLE LANE JR SR HIGH SCHOOL	HIST FTTS
LEWIS CO. USED OIL COLLECTIONS	SWF/LF
CENTRALIA WWTP	SWF/LF
CHUCK'S RECYCLE AND CORE	SWF/LF
GRAND MOUND CARDLOCK	UST
WEYERHAEUSER CO ROCHESTER	RCRA-NonGen, FINDS
OAKVIEW ELEMENTARY SCHOOL	FINDS
END OF THE TRAIL #3	INDIAN UST

OVERVIEW MAP - 3082628.2s

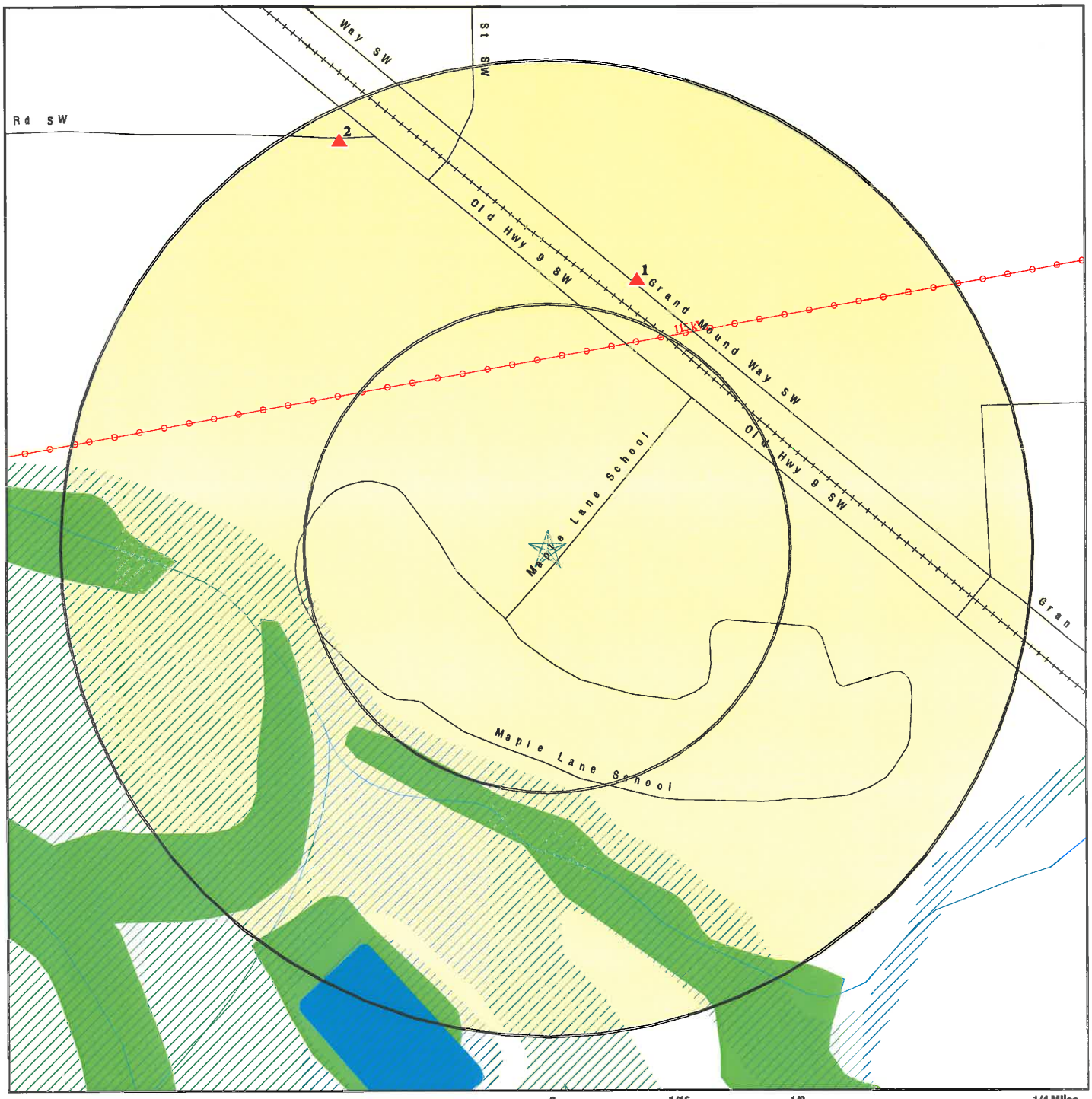


- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Maple Lane School	CLIENT: EHS International, Inc.
ADDRESS: 20311 Highway 9 SW Centralia WA 98531	CONTACT: Jason Cass
LAT/LONG: 46.7925 / 123.0284	INQUIRY #: 3082628.2s DATE: June 07, 2011 4:34 am

DETAIL MAP - 3082628.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Maple Lane School	CLIENT: EHS International, Inc.
ADDRESS: 20311 Highway 9 SW Centralia WA 98531	CONTACT: Jason Cass
LAT/LONG: 46.7925 / 123.0284	INQUIRY #: 3082628.2s DATE: June 07, 2011 4:34 am

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL		1.000	0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS		0.500	0	0	0	NR	NR	0
FEDERAL FACILITY		1.000	0	0	0	0	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP		0.500	0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS		1.000	0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF		0.500	0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG		0.250	0	0	NR	NR	NR	0
RCRA-SQG		0.250	0	0	NR	NR	NR	0
RCRA-CESQG		0.250	0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
Federal ERNS list								
ERNS		TP	NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
HSL		1.000	0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
CSCSL		1.000	0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF		0.500	0	1	0	NR	NR	1
State and tribal leaking storage tank lists								
LUST		0.500	0	0	0	NR	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
State and tribal registered storage tank lists								
UST		0.250	0	0	NR	NR	NR	0
AST		0.250	0	0	NR	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
FEMA UST		0.250	0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
INST CONTROL		0.500	0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	1	NR	NR	1
ICR		0.500	0	0	1	NR	NR	1
State and tribal Brownfields sites								
BROWNFIELDS		0.500	0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
SWTIRE		0.500	0	0	0	NR	NR	0
INDIAN ODI		0.500	0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL		TP	NR	NR	NR	NR	NR	0
ALLSITES		0.500	0	1	2	NR	NR	3
CSCSL NFA		0.500	0	0	1	NR	NR	1
CDL		TP	NR	NR	NR	NR	NR	0
HIST CDL		TP	NR	NR	NR	NR	NR	0
US HIST CDL		TP	NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2		TP	NR	NR	NR	NR	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS		TP	NR	NR	NR	NR	NR	0
SPILLS		TP	NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA-NonGen		0.250	0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DOT OPS		TP	NR	NR	NR	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
UIC		TP	NR	NR	NR	NR	NR	0
MANIFEST		0.250	0	0	NR	NR	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
NPDES		TP	NR	NR	NR	NR	NR	0
AIRS		TP	NR	NR	NR	NR	NR	0
Inactive Drycleaners		0.250	0	0	NR	NR	NR	0
INDIAN RESERV		1.000	0	0	0	0	NR	0
SCRD DRYCLEANERS		0.500	0	0	0	NR	NR	0
FINANCIAL ASSURANCE		TP	NR	NR	NR	NR	NR	0
COAL ASH		0.500	0	0	0	NR	NR	0
COAL ASH DOE		TP	NR	NR	NR	NR	NR	0
COAL ASH EPA		0.500	0	0	0	NR	NR	0
PCB TRANSFORMER		TP	NR	NR	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
EDR Proprietary Records								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

1
NNE
1/8-1/4
0.145 mi.
768 ft.

GRAND MOUND WWTP
20248 GRAND MOUND WAY SW
GRAND MOUND, WA 98531

SWF/LF **S110336045**
N/A

Relative:
Higher

Actual:
176 ft.

SWF/LF:

Facility ID:	2201
Region:	STATE
Permit Status:	ACTIVE
Date Closed:	Not reported
Contact Organization:	Not reported
Contact Address1:	2404 A1 HERITAGE COURT SW
Contact Address2:	Not reported
Contact City:	OLYMPIA
Contact State:	WA
Contact Postal:	98502
Contact EMail:	PETRIEMA@CO.THURSTON.WA.US
Contact Phone:	360-754-2930
Contact Phone Ext:	Not reported
Permit No:	BA0042099
Phone:	Not reported
Operator Name:	Not reported
Operator Organization:	Not reported
EMail:	PETRIEMA@CO.THURSTON.WA.US
Recycle Survey Code:	Not reported
Ownership:	PUBLIC
Type:	BIOSOLIDS
Contact Name:	MARK PETRIE
Contact Title:	UTILITY OPERATIONS MANAGER
Activity1:	BIOSOLIDS (308)

2
NNW
1/8-1/4
0.234 mi.
1238 ft.

JAMES ROAD DAIRY LLC
7049 JAMES RD SW
ROCHESTER, WA 98579

FINDS **1007079074**
ALLSITES **N/A**

Relative:
Higher

Actual:
164 ft.

FINDS:

Registry ID: 110015557734

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

ALLSITES:

Facility Id:	2777287
Latitude:	46.795054126735302
Longitude:	-123.03124188882001
Geographic location identifier (alias facid):	2777287
Facility Name:	JAMES ROAD DAIRY LLC
Latitude Decimal Degrees:	46.795054126700002
Longitude Decimal Degrees:	-123.031241889

JAMES ROAD DAIRY LLC (Continued) **1007079074**

Coordinate Point Areal Extent Code:	1
Horizontal Accuracy Code:	99
Coordinate Point Geographic Position Code:	99
Location Verified Code:	N
Geographic Location Identifier (Alias Facid):	2777287
Interaction (Aka Env Int) Type Code:	CAFOGP
Interaction (Aka Env Int) Description:	CAFO GP
Interaction Status:	I
Federal Program Indentifier:	WAG011022
Interaction Start Date:	8/3/1998
Interaction End Date:	3/31/2005
prgm_facil:	JAMES ROAD DAIRY LLC
cur_sys_pr:	WATQUAL
cur_sys_nm:	PARIS
Geographic Location Identifier (Alias Facid):	2777287
Interaction (Aka Env Int) Type Code:	WQDAIRY
Interaction (Aka Env Int) Description:	Dairy
Interaction Status:	A
Federal Program Indentifier:	Not reported
Interaction Start Date:	8/5/2002
Interaction End Date:	Not reported
prgm_facil:	JAMES ROAD DAIRY LLC
cur_sys_pr:	WATQUAL
cur_sys_nm:	DAIRY

3
NW
1/4-1/2
0.454 mi.
2399 ft.

MAPLE LANE SCHOOL
20311 OLD HWY 9 SW
CENTRALIA, WA 98531

ALLSITES **1000660026**
CSCSL NFA **N/A**
VCP
ICR

Relative:
Higher

Actual:
181 ft.

ALLSITES:

Facility Id:	63149499
Latitude:	46.793472000000001
Longitude:	-123.0275
Geographic location identifier (alias facid):	63149499
Facility Name:	Maple Lane School
Latitude Decimal Degrees:	46.793472000000001
Longitude Decimal Degrees:	-123.0275
Coordinate Point Areal Extent Code:	99
Horizontal Accuracy Code:	9
Coordinate Point Geographic Position Code:	99
Location Verified Code:	N
Geographic Location Identifier (Alias Facid):	63149499
Interaction (Aka Env Int) Type Code:	VOLCLNST
Interaction (Aka Env Int) Description:	Voluntary Cleanup Sites
Interaction Status:	I
Federal Program Indentifier:	SW0926
Interaction Start Date:	1/8/2008
Interaction End Date:	1/9/2009
prgm_facil:	Maple Lane School
cur_sys_pr:	TOXICS
cur_sys_nm:	ISIS

MAPLE LANE SCHOOL (Continued) **1000660026**

Geographic Location Identifier (Alias Facid):	63149499
Interaction (Aka Env Int) Type Code:	UST
Interaction (Aka Env Int) Description:	Underground Storage Tank
Interaction Status:	I
Federal Program Indentifier:	100184 HISTDB
Interaction Start Date:	8/29/1990
Interaction End Date:	8/6/1996
prgm_facil:	Not reported
cur_sys_pr:	TOXICS
cur_sys_nm:	ISIS

Geographic Location Identifier (Alias Facid):	63149499
Interaction (Aka Env Int) Type Code:	HWG
Interaction (Aka Env Int) Description:	Hazardous Waste Generator
Interaction Status:	I
Federal Program Indentifier:	WAD988497061
Interaction Start Date:	1/24/1994
Interaction End Date:	12/31/2003
prgm_facil:	Not reported
cur_sys_pr:	HAZWASTE
cur_sys_nm:	TURBOWASTE

Geographic Location Identifier (Alias Facid):	63149499
Interaction (Aka Env Int) Type Code:	SCS
Interaction (Aka Env Int) Description:	State Cleanup Site
Interaction Status:	I
Federal Program Indentifier:	Not reported
Interaction Start Date:	5/1/1997
Interaction End Date:	10/20/2003
prgm_facil:	Maple Lane School
cur_sys_pr:	TOXICS
cur_sys_nm:	ISIS

Geographic Location Identifier (Alias Facid):	63149499
Interaction (Aka Env Int) Type Code:	LUST
Interaction (Aka Env Int) Description:	LUST Facility
Interaction Status:	I
Federal Program Indentifier:	100184 HISTDB
Interaction Start Date:	6/19/1997
Interaction End Date:	10/20/2003
prgm_facil:	Not reported
cur_sys_pr:	TOXICS
cur_sys_nm:	ISIS

Geographic Location Identifier (Alias Facid):	63149499
Interaction (Aka Env Int) Type Code:	SCS
Interaction (Aka Env Int) Description:	State Cleanup Site
Interaction Status:	I
Federal Program Indentifier:	Not reported
Interaction Start Date:	10/20/2003
Interaction End Date:	1/9/2009
prgm_facil:	Maple Lane School
cur_sys_pr:	TOXICS
cur_sys_nm:	ISIS

MAPLE LANE SCHOOL (Continued) **1000660026**

CSCSL NFA:
Facility/Site Id: 63149499
CS Id: 673
NFA Type: NFA-VCP Review
NFA Date: 2009-01-09
Rank: 3

VCP:
edr_fstat: WA
edr_fzip: 98531-9620
edr_fcnty: THURSTON COUNTY
edr_zip: Not reported
Facility ID: 63149499
VCP Status: Not reported
VCP: Y
Ecology Status: Not reported
NFA Type: NFA after assessment, IRAP, or VCP
Date NFA: 1/9/2009
Rank: 3

ICR:
Date Ecology Received Report: 08/25/97
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Waste Management: Tank
Region: South Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 95-06
County Code: 21
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 06/11/99
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Waste Management: Tank
Region: South Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-16
County Code: 21
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 09/10/99
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Waste Management: Tank
Region: South Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-21
County Code: 21
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 02/02/00
Contaminants Found at Site: Petroleum products

MAPLE LANE SCHOOL (Continued) **1000660026**

Media Contaminated:	Soil
Waste Management:	Tank
Region:	South Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-24
County Code:	21
Contact:	Not reported
Report Title:	Not reported

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4 **1940 DESOTO DRUG LAB** **RCRA-NonGen** **1000839114**
ESE **20428 GRAND MOUND WAY** **FINDS** **WAD988519534**
1/4-1/2 **ROCHESTER, WA 98579** **ALLSITES**
0.458 mi.
2419 ft.

Relative:
Higher

Actual:
164 ft.

RCRA-NonGen:

Date form received by agency:	04/06/1993
Facility name:	1940 DESOTO DRUG LAB
Facility address:	20428 GRAND MOUND WAY ROCHESTER, WA 98579
EPA ID:	WAD988519534
Mailing address:	PO BOX 47775 OLYMPIA, WA 98504-7775
Contact:	DAVE ROGOWSKI
Contact address:	PO BOX 47775 OLYMPIA, WA 98504-7775
Contact country:	US
Contact telephone:	(360)753-2353
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	WA ECY
Owner/operator address:	PO BOX 47775 OLYMPIA, WA 98504
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	04/06/1993
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No

1940 DESOTO DRUG LAB (Continued) **1000839114**

Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

FINDS:

Registry ID: 110005385314

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ALLSITES:

Facility Id:	81526275
Latitude:	46.79074
Longitude:	-123.01953
Geographic location identifier (alias facid):	81526275
Facility Name:	1940 Desoto Drug Lab
Latitude Decimal Degrees:	46.79074
Longitude Decimal Degrees:	-123.01953
Coordinate Point Areal Extent Code:	99
Horizontal Accuracy Code:	99
Coordinate Point Geographic Position Code:	99
Location Verified Code:	N
Geographic Location Identifier (Alias Facid):	81526275
Interaction (Aka Env Int) Type Code:	HWG
Interaction (Aka Env Int) Description:	Hazardous Waste Generator
Interaction Status:	I
Federal Program Indentifier:	WAD988519534
Interaction Start Date:	4/6/1993
Interaction End Date:	12/31/1993
prgm_facil:	Not reported
cur_sys_pr:	HAZWASTE
cur_sys_nm:	TURBOWASTE

Count: 27 records

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
CENTRALIA	S108477658	LEWIS CO. USED OIL COLLECTIONS	PO BOX 180	98531	SWF/LF
CENTRALIA	1011281447	TRUCK ACCESSORIES GROUP INC PACE EDWARDS	2400 COMMERCIALBLVD	98531	FINDS, CSCSL, ALLSITES
CENTRALIA	S110336014	CENTRALIA WWTP	1201 GOODRICH RD	98531	SWF/LF
CENTRALIA	1008000955	SUBURBAN PROPANE CENTRALIA 2	20533 GRAND MOUND WAY	98531	FINDS, ALLSITES
CENTRALIA	S110036077	GOLDEN UNICORN FAMILY TRUST	4020 HARRISON AVE	98531	CSCSL, ALLSITES
CENTRALIA	S110038372	CENTRALIA CITY MUNI SW	118 W MAPLE ST	98531	ALLSITES, NPDES
CENTRALIA	1011476787	OAKVIEW ELEMENTARY SCHOOL	201 OAKVIEW AVENUE	98531	FINDS
CENTRALIA	S109556990	BRADLEY ENTERPRISES INC	21822 OLD HWY 99 SW	98531	ALLSITES
CENTRALIA	1007062728	SUBURBAN PROPANE CENTRALIA	20639 OLD HWY 99 SW	98531	FINDS, ALLSITES
CENTRALIA	1010006604	MAPLE LANE JR SR HIGH SCHOOL	20311 OLD HWY 99 SW	98531	FTTS
CENTRALIA	1008184310	MAPLE LANE JR SR HIGH SCHOOL	20311 OLD HWY 99 SW	98531	HIST FTTS
CENTRALIA	S109824390	AA AUTO SALES	20223 OLD HIGHWAY 99 SW	98531	ALLSITES
CENTRALIA	S110336331	CHUCK'S RECYCLE AND CORE	619 REYNOLDS ROAD	98531	SWF/LF
CENTRALIA	S110037806	PIECES FAMILY TRUST	1303 W REYNOLDS AVE	98531	CSCSL, ALLSITES
CENTRALIA	S109695983	CONOCO CO	212 ROBERT THOMPSON RD	98531	ALLSITES, CSCSL NFA, SPILLS, VCP, NPDES
GRAND MOUND	S110039052	PRAIRIE CREEK BRIDGE REPLACEMENT	OLY HWY 99 203RD AVE SARGENT RD SW	98579	ALLSITES
ROCHESTER	U003354877	BRIARWOOD FARMS & NEST BEST EGG	8626 HWY 12 SW	98579	ALLSITES, UST
ROCHESTER	1000660514	WEYERHAEUSER CO ROCHESTER	7935 HWY 12 SW	98579	RCRA-NonGen, FINDS
ROCHESTER	S109555540	SCATTER CREEK REST AREA ONSITE	SR 5 MP 90.9 RIGHT T16N R2W S31	98579	ALLSITES
ROCHESTER	S110040809	WA DOT E I5 MILEPOST 87.5	MP 87 I5 N	98579	CSCSL, ALLSITES
ROCHESTER	U003960406	LARRYS CHEVRON UST 438967	9525 SW HWY 12	98579	ALLSITES, UST
ROCHESTER	S110039486	INDEPENDENCE ROAD	INDEPENDENCE RD MP 0.6-0.9	98579	ALLSITES
ROCHESTER	S110700439	FRISIA DAIRY & CREAMERY LLC	8725 JAMES RD SW	98579	ALLSITES
ROCHESTER	1012010477	END OF THE TRAIL #3	20330 OLD HIGHWAY 99	98579	INDIAN UST
ROCHESTER	S108024825	GRAND MOUND CARDLOCK	19722 OLD HWY 99 SW	98579	CSCSL, ALLSITES, CSCSL NFA, VCF FINANCIAL ASSURANCE
ROCHESTER	U004151392	GRAND MOUND CARDLOCK	19722 OLD HWY 99 SW	98579	UST
ROCHESTER	1007077502	DRAGT DAIRY	19425 OLD HWY 99 SW	98579	FINDS, ALLSITES

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 15

Source: EPA
Telephone: N/A
Last EDR Contact: 04/13/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites
A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 15

Source: EPA
Telephone: N/A
Last EDR Contact: 04/13/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens
Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 05/16/2011
Next Scheduled EDR Contact: 08/29/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 15

Source: EPA
Telephone: N/A
Last EDR Contact: 04/13/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/25/2011
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 06/03/2011
Next Scheduled EDR Contact: 09/12/2011
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPAa??s Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/10/2010
Date Data Arrived at EDR: 01/11/2011
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/15/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 02/25/2011
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 06/03/2011
Next Scheduled EDR Contact: 09/12/2011
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 05/25/2010
Date Data Arrived at EDR: 06/02/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 124

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 05/16/2011
Next Scheduled EDR Contact: 08/29/2011
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 01/05/2011
Date Data Arrived at EDR: 01/14/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 01/05/2011
Date Data Arrived at EDR: 01/14/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/07/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 73

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Annually

State- and tribal - equivalent NPL

HSL: Hazardous Sites List

The Hazardous Sites List is a subset of the CSCSL Report. It includes sites which have been assessed and ranked using the Washington Ranking Method (WARM).

Date of Government Version: 03/01/2011
Date Data Arrived at EDR: 03/18/2011
Date Made Active in Reports: 03/30/2011
Number of Days to Update: 12

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 03/15/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Semi-Annually

State- and tribal - equivalent CERCLIS

CSCSL: Confirmed and Suspected Contaminated Sites List

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 04/26/2011
Date Data Arrived at EDR: 04/27/2011
Date Made Active in Reports: 05/16/2011
Number of Days to Update: 19

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 04/27/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Solid Waste Facility Database
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 12/14/2010
Date Data Arrived at EDR: 12/15/2010
Date Made Active in Reports: 12/23/2010
Number of Days to Update: 8

Source: Department of Ecology
Telephone: 360-407-6132
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Annually

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tanks Site List
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 02/23/2011
Date Data Arrived at EDR: 02/24/2011
Date Made Active in Reports: 03/18/2011
Number of Days to Update: 22

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 05/26/2011
Next Scheduled EDR Contact: 09/05/2011
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 01/31/2011
Date Data Arrived at EDR: 02/01/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 48

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 03/03/2011
Date Data Arrived at EDR: 03/18/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 45

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Semi-Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/03/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 09/01/2010
Date Data Arrived at EDR: 11/05/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 84

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/03/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 02/03/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 11/04/2009
Date Data Arrived at EDR: 05/04/2010
Date Made Active in Reports: 07/07/2010
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/04/2010
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 02/04/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: Underground Storage Tank Database
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 02/23/2011
Date Data Arrived at EDR: 02/24/2011
Date Made Active in Reports: 03/18/2011
Number of Days to Update: 22

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 05/26/2011
Next Scheduled EDR Contact: 09/05/2011
Data Release Frequency: Quarterly

AST: Aboveground Storage Tank Locations
A listing of aboveground storage tank locations regulated by the Department of Ecology's Spill Prevention, Preparedness and Response Program.

Date of Government Version: 05/27/2009
Date Data Arrived at EDR: 05/28/2009
Date Made Active in Reports: 06/19/2009
Number of Days to Update: 22

Source: Department of Ecology
Telephone: 360-407-7562
Last EDR Contact: 05/09/2011
Next Scheduled EDR Contact: 08/22/2011
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 03/03/2011
Date Data Arrived at EDR: 03/18/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 45

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 01/31/2011
Date Data Arrived at EDR: 02/01/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 48

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 02/04/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/03/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 09/01/2010
Date Data Arrived at EDR: 11/05/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 84

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/03/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 01/01/2011
Date Data Arrived at EDR: 02/23/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 68

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 02/03/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 11/01/2010
Date Data Arrived at EDR: 12/02/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 57

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 02/03/2011
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 04/18/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

INST CONTROL: Institutional Control Site List
Sites that have institutional controls.

Date of Government Version: 02/15/2011
Date Data Arrived at EDR: 02/18/2011
Date Made Active in Reports: 02/24/2011
Number of Days to Update: 6

Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 05/18/2011
Next Scheduled EDR Contact: 08/29/2011
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/01/2010
Date Data Arrived at EDR: 01/05/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 75

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Sites
Sites that have entered either the Voluntary Cleanup Program or its predecessor Independent Remedial Action Program.

Date of Government Version: 01/25/2011
Date Data Arrived at EDR: 02/03/2011
Date Made Active in Reports: 02/18/2011
Number of Days to Update: 15

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 04/26/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

ICR: Independent Cleanup Reports
These are remedial action reports Ecology has received from either the owner or operator of the sites. These actions have been conducted without department oversight or approval and are not under an order or decree. This database is no longer updated by the Department of Ecology.

Date of Government Version: 12/01/2002
Date Data Arrived at EDR: 01/03/2003
Date Made Active in Reports: 01/22/2003
Number of Days to Update: 19

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 08/10/2009
Next Scheduled EDR Contact: 11/09/2009
Data Release Frequency: No Update Planned

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Sites Listing
A listing of brownfields sites included in the Confirmed & Suspected Sites Listing. Brownfields are abandoned, idle or underused commercial or industrial properties, where the expansion or redevelopment is hindered by real or perceived contamination. Brownfields vary in size, location, age, and past use -- they can be anything from a five-hundred acre automobile assembly plant to a small, abandoned corner gas station.

Date of Government Version: 04/26/2011
Date Data Arrived at EDR: 04/27/2011
Date Made Active in Reports: 05/12/2011
Number of Days to Update: 15

Source: Department of Ecology
Telephone: 360-725-4030
Last EDR Contact: 04/27/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 12/29/2010
Date Data Arrived at EDR: 12/30/2010
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/29/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 03/28/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWTIRE: Solid Waste Tire Facilities
This study identified sites statewide with unauthorized accumulations of scrap tires.

Date of Government Version: 11/01/2005
Date Data Arrived at EDR: 03/16/2006
Date Made Active in Reports: 04/13/2006
Number of Days to Update: 28

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 03/16/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 05/09/2011
Next Scheduled EDR Contact: 08/22/2011
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/02/2011
Date Data Arrived at EDR: 03/17/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 46

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/08/2011
Next Scheduled EDR Contact: 06/20/2011
Data Release Frequency: Quarterly

ALLSITES: Facility/Site Identification System Listing
Information on facilities and sites of interest to the Department of Ecology.

Date of Government Version: 02/08/2011
Date Data Arrived at EDR: 02/09/2011
Date Made Active in Reports: 02/24/2011
Number of Days to Update: 15

Source: Department of Ecology
Telephone: 360-407-6423
Last EDR Contact: 05/12/2011
Next Scheduled EDR Contact: 08/22/2011
Data Release Frequency: Quarterly

CSCSL NFA: Confirmed and Contaminated Sites - No Further Action
The data set contains information about sites previously on the Confirmed and Suspected Contaminated Sites list that have received a No Further Action (NFA) determination. Because it is necessary to maintain historical records of sites that have been investigated and cleaned up, sites are not deleted from the database when cleanup activities are completed. Instead, a No Further Action code is entered based upon the type of NFA determination the site received.

Date of Government Version: 04/26/2011
Date Data Arrived at EDR: 04/27/2011
Date Made Active in Reports: 05/12/2011
Number of Days to Update: 15

Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 04/27/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Semi-Annually

CDL: Clandestine Drug Lab Contaminated Site List

Illegal methamphetamine labs use hazardous chemicals that create public health hazards. Chemicals and residues can cause burns, respiratory and neurological damage, and death. Biological hazards associated with intravenous needles, feces, and blood also pose health risks.

Date of Government Version: 02/09/2009
Date Data Arrived at EDR: 03/18/2009
Date Made Active in Reports: 03/24/2009
Number of Days to Update: 6

Source: Department of Health
Telephone: 360-236-3380
Last EDR Contact: 05/17/2011
Next Scheduled EDR Contact: 08/29/2011
Data Release Frequency: Varies

HIST CDL: List of Sites Contaminated by Clandestine Drug Labs

This listing of contaminated sites by Clandestine Drug Labs includes non-remediated properties. The current CDL listing does not. This listing is no longer updated by the state agency.

Date of Government Version: 02/08/2007
Date Data Arrived at EDR: 06/26/2007
Date Made Active in Reports: 07/19/2007
Number of Days to Update: 23

Source: Department of Health
Telephone: 360-236-3381
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/23/2011
Next Scheduled EDR Contact: 09/05/2011
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/05/2011
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 51

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Annually

SPILLS: Reported Spills
Spills reported to the Spill Prevention, Preparedness and Response Division.

Date of Government Version: 04/07/2011
Date Data Arrived at EDR: 04/07/2011
Date Made Active in Reports: 05/12/2011
Number of Days to Update: 35

Source: Department of Ecology
Telephone: 360-407-6950
Last EDR Contact: 03/28/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Semi-Annually

Other Ascertainable Records

RCRA-NonGen: RCRA - Non Generators
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/12/2011
Date Data Arrived at EDR: 02/11/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 05/11/2011
Next Scheduled EDR Contact: 08/22/2011
Data Release Frequency: Varies

DOD: Department of Defense Sites
This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/21/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites
The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 08/12/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 112

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 03/15/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 10/01/2010
Date Data Arrived at EDR: 10/29/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 91

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/04/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 02/25/2011
Date Data Arrived at EDR: 03/16/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 5

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/16/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/21/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 99

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 06/02/2011
Next Scheduled EDR Contact: 09/12/2011
Data Release Frequency: Varies

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/08/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/09/2011
Next Scheduled EDR Contact: 06/20/2011
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/17/2010
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 94

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 05/27/2011
Next Scheduled EDR Contact: 09/12/2011
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/29/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Every 4 Years

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 05/27/2011
Next Scheduled EDR Contact: 09/12/2011
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 05/27/2011
Next Scheduled EDR Contact: 09/12/2011
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 01/07/2011
Date Data Arrived at EDR: 01/21/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 59

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 03/28/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2010
Date Data Arrived at EDR: 11/10/2010
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 98

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/22/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/18/2010
Date Data Arrived at EDR: 04/06/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 51

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/11/2011
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 34

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/13/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/14/2010
Date Data Arrived at EDR: 04/16/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 41

Source: EPA
Telephone: (206) 553-1200
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 05/27/2011
Next Scheduled EDR Contact: 09/12/2011
Data Release Frequency: Biennially

UIC: Underground Injection Wells Listing
A listing of underground injection wells.

Date of Government Version: 02/23/2011
Date Data Arrived at EDR: 02/24/2011
Date Made Active in Reports: 03/18/2011
Number of Days to Update: 22

Source: Department of Ecology
Telephone: 360-407-6143
Last EDR Contact: 05/26/2011
Next Scheduled EDR Contact: 09/05/2011
Data Release Frequency: Varies

WA MANIFEST: Hazardous Waste Manifest Data
Hazardous waste manifest information.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 05/13/2010
Date Made Active in Reports: 05/19/2010
Number of Days to Update: 6

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 04/25/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Annually

DRYCLEANERS: Drycleaner List
A listing of registered drycleaners who registered with the Department of Ecology (using the SIC code of 7215 and 7216) as hazardous waste generators.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 05/13/2010
Date Made Active in Reports: 05/19/2010
Number of Days to Update: 6

Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 04/25/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Varies

NPDES: Water Quality Permit System Data
A listing of permitted wastewater facilities.

Date of Government Version: 02/15/2011
Date Data Arrived at EDR: 02/18/2011
Date Made Active in Reports: 04/07/2011
Number of Days to Update: 48

Source: Department of Ecology
Telephone: 360-407-6073
Last EDR Contact: 04/25/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Quarterly

AIRS (EMI): Washington Emissions Data System
Emissions inventory data.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 01/11/2011
Date Made Active in Reports: 02/23/2011
Number of Days to Update: 43

Source: Department of Ecology
Telephone: 360-407-6040
Last EDR Contact: 03/28/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INACTIVE DRYCLEANERS: Inactive Drycleaners
A listing of inactive drycleaner facility locations.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 05/13/2010
Date Made Active in Reports: 05/19/2010
Number of Days to Update: 6

Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 04/25/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Annually

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/21/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 06/06/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Varies

FINANCIAL ASSURANCE 3: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/19/2007
Number of Days to Update: 44

Source: Department of Ecology
Telephone: 360-407-6136
Last EDR Contact: 05/24/2011
Next Scheduled EDR Contact: 09/05/2011
Data Release Frequency: Varies

FINANCIAL ASSURANCE 1: Financial Assurance Information Listing
A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/22/2011
Date Data Arrived at EDR: 03/02/2011
Date Made Active in Reports: 03/18/2011
Number of Days to Update: 16

Source: Department of Ecology
Telephone: 360-586-1060
Last EDR Contact: 05/23/2011
Next Scheduled EDR Contact: 09/05/2011
Data Release Frequency: Varies

FINANCIAL ASSURANCE 2: Financial Assurance Information Listing
A listing of financial assurance information for hazardous waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 11/30/2010
Date Made Active in Reports: 12/23/2010
Number of Days to Update: 23

Source: Department of Ecology
Telephone: 360-407-6754
Last EDR Contact: 05/23/2011
Next Scheduled EDR Contact: 09/05/2011
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH: Coal Ash Disposal Site Listing
A listing of coal ash disposal site locations.

Date of Government Version: 06/29/2009
Date Data Arrived at EDR: 07/02/2009
Date Made Active in Reports: 07/08/2009
Number of Days to Update: 6

Source: Department of Ecology
Telephone: 360-407-6933
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 04/19/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/18/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 01/01/2008
Date Data Arrived at EDR: 02/18/2009
Date Made Active in Reports: 05/29/2009
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 05/05/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/21/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: N/A

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

COUNTY RECORDS

KING COUNTY:

Abandoned Landfill Study in King County
The King County Abandoned Landfill Survey was conducted from October through December 1984 by the Health Department's Environmental Health Division at the request of the King County Council. The primary objective of the survey was to determine if any public health problems existed at the predetermined 24 sites.

Date of Government Version: 04/30/1985
Date Data Arrived at EDR: 11/07/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Seattle-King County Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 10/21/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SEATTLE COUNTY:

Abandoned Landfill Study in the City of Seattle
The Seattle Abandoned Landfill Survey was conducted in June and July of 1984 by the Health Department's Environmental Health Division at the request of the Mayor's Office. The primary objective of the survey was to determine if any public health problems existed at the predetermined 12 sites.

Date of Government Version: 07/30/1984
Date Data Arrived at EDR: 11/07/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Seattle - King County Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 10/21/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SEATTLE/KING COUNTY:

Seattle - King County Abandoned Landfill Toxicity / Hazard Assessment Project
This report presents the Seattle-King County Health Department's follow-up investigation of two city owned and four county owned abandoned landfills which was conducted from February to December 1986.

Date of Government Version: 12/31/1986
Date Data Arrived at EDR: 08/18/1995
Date Made Active in Reports: 09/20/1995
Number of Days to Update: 33

Source: Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 08/14/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SNOHOMISH COUNTY:

Solid Waste Sites of Record at Snohomish Health District
Solid waste disposal and/or utilization sites in Snohomish County.

Date of Government Version: 03/08/2011
Date Data Arrived at EDR: 03/31/2011
Date Made Active in Reports: 05/06/2011
Number of Days to Update: 36

Source: Snohomish Health District
Telephone: 206-339-5250
Last EDR Contact: 03/29/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Semi-Annually

TACOMA/PIERCE COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Closed Landfill Survey

Following numerous requests for information about closed dumpsites and landfills in Pierce County, the Tacoma-Pierce County Health Department decided to conduct a study on the matter. The aim of the study was to evaluate public health risks associated with the closed dumpsites and landfills, and to determine the need, if any, for further investigations of a more detailed nature. The sites represent all of the known dumpsites and landfills closed after 1950.

Date of Government Version: 09/01/2002
Date Data Arrived at EDR: 03/24/2003
Date Made Active in Reports: 05/14/2003
Number of Days to Update: 51

Source: Tacoma-Pierce County Health Department
Telephone: 206-591-6500
Last EDR Contact: 03/19/2003
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 08/26/2009
Date Made Active in Reports: 09/11/2009
Number of Days to Update: 16

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 05/26/2011
Next Scheduled EDR Contact: 09/05/2011
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 05/12/2011
Date Made Active in Reports: 05/24/2011
Number of Days to Update: 12

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 05/12/2011
Next Scheduled EDR Contact: 08/22/2011
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 12/01/2009
Date Made Active in Reports: 12/14/2009
Number of Days to Update: 13

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/04/2011
Next Scheduled EDR Contact: 07/06/2011
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 07/06/2010
Date Made Active in Reports: 07/26/2010
Number of Days to Update: 20

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/21/2011
Next Scheduled EDR Contact: 07/04/2011
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Daycare Center Listing
Source: Department of Social & Health Services
Telephone: 253-383-1735

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

GEOCHECK®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

MAPLE LANE SCHOOL
20311 HIGHWAY 9 SW
CENTRALIA, WA 98531

TARGET PROPERTY COORDINATES

Latitude (North):	46.79250 - 46° 47' 33.0"
Longitude (West):	123.0284 - 123° 1' 42.2"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	497832.5
UTM Y (Meters):	5181888.0
Elevation:	158 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	46123-G1 ROCHESTER, WA
Most Recent Revision:	1993

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

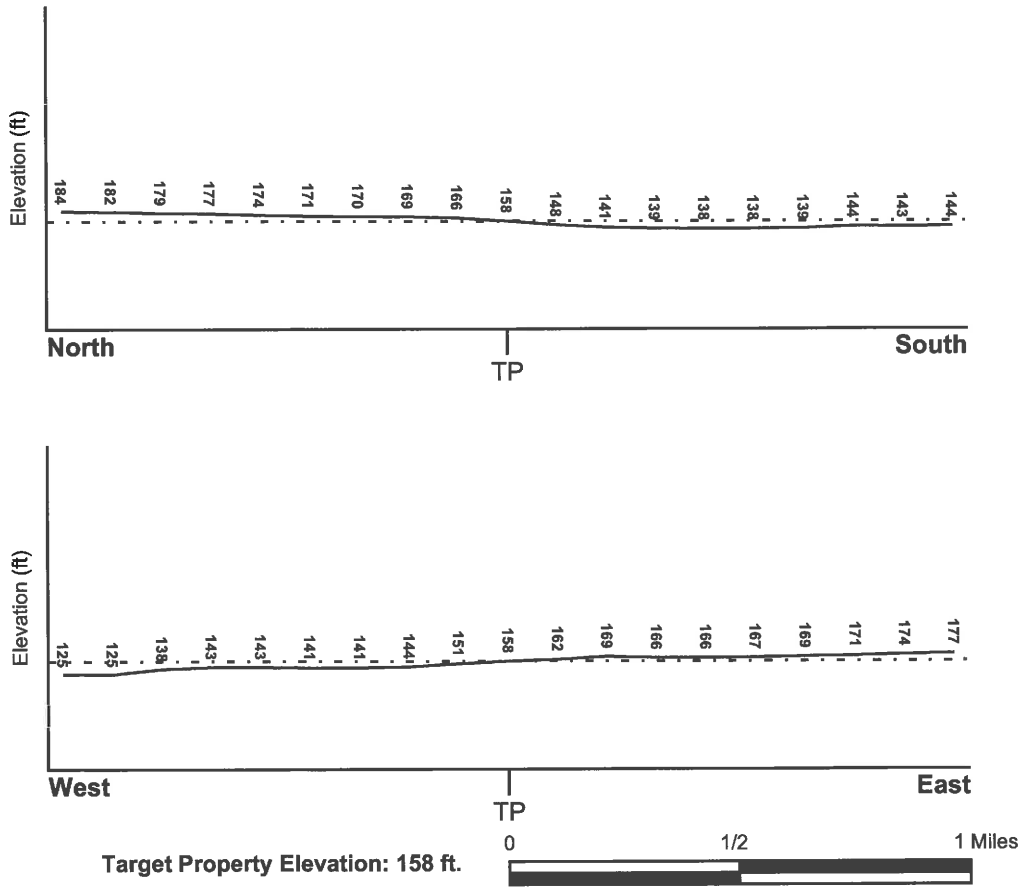
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
THURSTON, WA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 5301880445C - FEMA Q3 Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
ROCHESTER	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius: 1.25 miles
Status: Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

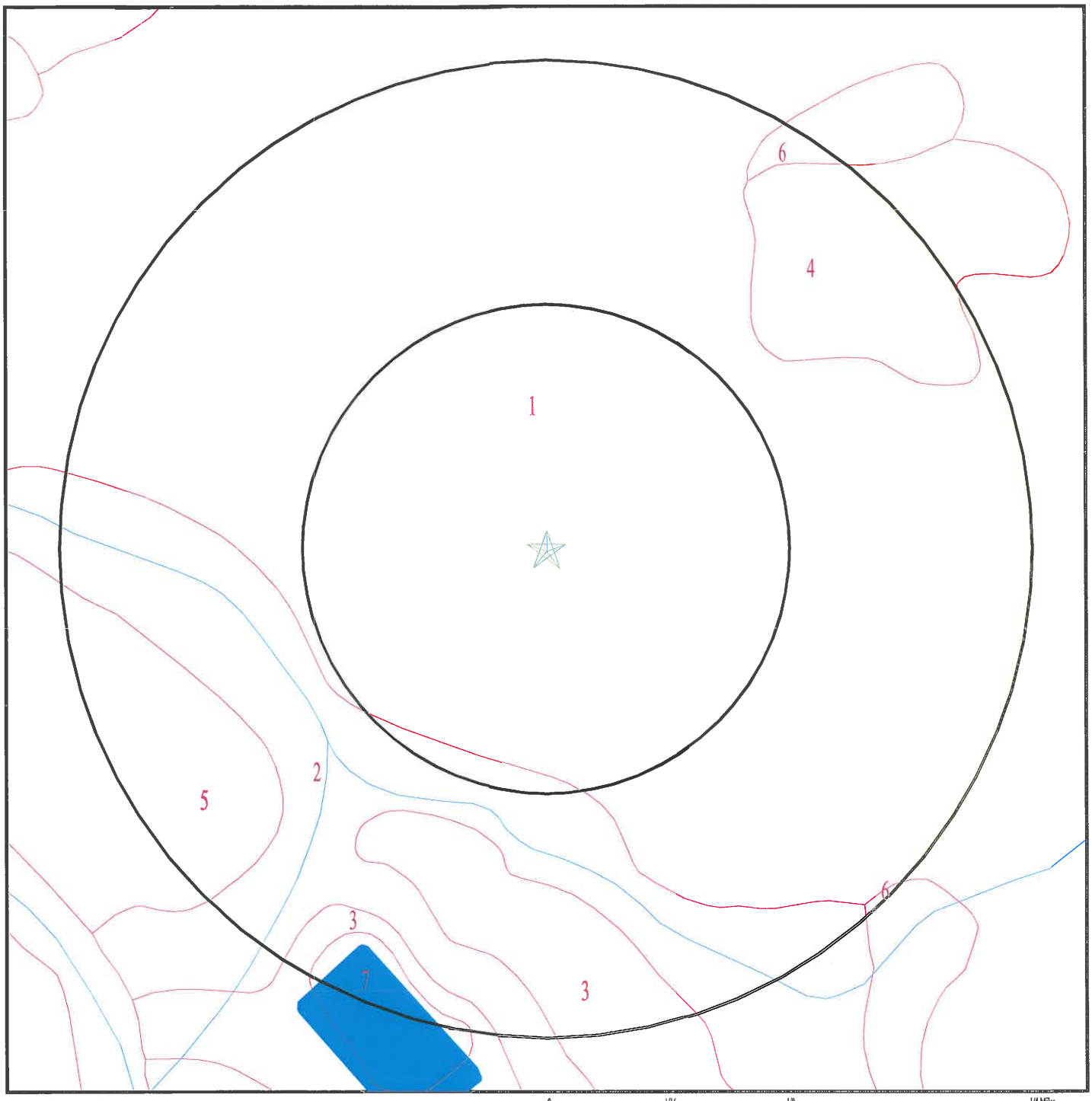
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 3082628.2s



★ Target Property
SSURGO Soil
Water

SITE NAME:	Maple Lane School	CLIENT:	EHS International, Inc.
ADDRESS:	20311 Highway 9 SW Centralia WA 98531	CONTACT:	Jason Cass
LAT/LONG:	46.7925 / 123.0284	INQUIRY #:	3082628.2s
		DATE:	June 07, 2011 4:34 am

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Spanaway

Soil Surface Texture: gravelly sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILIS, Gravels, Clean Gravels, Well-graded gravel.	Max: 705 Min: 141	Max: 7.3 Min: 6.1
2	14 inches	20 inches	very gravelly loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILIS, Gravels, Clean Gravels, Well-graded gravel.	Max: 705 Min: 141	Max: 7.3 Min: 6.1
3	20 inches	59 inches	extremely gravelly sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILIS, Gravels, Clean Gravels, Well-graded gravel.	Max: 705 Min: 141	Max: 7.3 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 2

Soil Component Name: Godfrey

Soil Surface Texture: silty clay loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 46 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 0 Min: 0	Max: 7.3 Min: 6.1
2	7 inches	51 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 0 Min: 0	Max: 7.3 Min: 6.1
3	51 inches	59 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 0 Min: 0	Max: 7.3 Min: 6.1

Soil Map ID: 3

Soil Component Name: Newberg

Soil Surface Texture: loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6.5 Min: 5.6
2	7 inches	59 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6.5 Min: 5.6

Soil Map ID: 4

Soil Component Name: Pits

Soil Surface Texture: loam

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 5

Soil Component Name: Newberg

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6.5 Min: 5.6
2	7 inches	59 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6.5 Min: 5.6

Soil Map ID: 6

Soil Component Name: Spanaway

Soil Surface Texture: gravelly sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat excessively drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILIS, Gravels, Clean Gravels, Well-graded gravel.	Max: 705 Min: 141	Max: 7.3 Min: 6.1
2	14 inches	20 inches	very gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILIS, Gravels, Clean Gravels, Well-graded gravel.	Max: 705 Min: 141	Max: 7.3 Min: 6.1
3	20 inches	59 inches	extremely gravelly sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILIS, Gravels, Clean Gravels, Well-graded gravel.	Max: 705 Min: 141	Max: 7.3 Min: 6.1

Soil Map ID: 7

Soil Component Name: Water

Soil Surface Texture: gravelly sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class:

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	USGS3251565	0 - 1/8 Mile SE
A2	USGS3251873	0 - 1/8 Mile SSE
5	USGS3251568	0 - 1/8 Mile SE
C6	USGS3251574	1/8 - 1/4 Mile NE
C7	USGS3251573	1/8 - 1/4 Mile NE
8	USGS3251584	1/8 - 1/4 Mile NNW
9	USGS3251571	1/8 - 1/4 Mile ENE
D10	USGS3251592	1/4 - 1/2 Mile NE
D11	USGS3251591	1/4 - 1/2 Mile NE
E15	USGS3251600	1/4 - 1/2 Mile North
F16	USGS3251567	1/4 - 1/2 Mile East
F17	USGS3251570	1/4 - 1/2 Mile East
F18	USGS3251566	1/4 - 1/2 Mile East
G19	USGS3251583	1/4 - 1/2 Mile ENE
G20	USGS3251582	1/4 - 1/2 Mile ENE
21	USGS3251608	1/4 - 1/2 Mile North
22	USGS3251597	1/4 - 1/2 Mile NE
23	USGS3251614	1/4 - 1/2 Mile NNE
H24	USGS3251605	1/4 - 1/2 Mile NNW
H25	USGS3251601	1/4 - 1/2 Mile NNW
I27	USGS3251607	1/2 - 1 Mile NE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
28	USGS3251628	1/2 - 1 Mile NE
I29	USGS3251613	1/2 - 1 Mile NE
I30	USGS3251606	1/2 - 1 Mile NE
I31	USGS3251612	1/2 - 1 Mile NE
I32	USGS3251611	1/2 - 1 Mile NE
I33	USGS3251619	1/2 - 1 Mile NE
I34	USGS3251618	1/2 - 1 Mile NE
35	USGS3251569	1/2 - 1 Mile East
J36	USGS3251629	1/2 - 1 Mile North
J37	USGS3251630	1/2 - 1 Mile North
39	USGS3251598	1/2 - 1 Mile NNE
40	USGS3251632	1/2 - 1 Mile North
K41	USGS3251590	1/2 - 1 Mile ENE
K42	USGS3251589	1/2 - 1 Mile ENE
L43	USGS3251577	1/2 - 1 Mile WNW
44	USGS3251536	1/2 - 1 Mile SSE
L45	USGS3251585	1/2 - 1 Mile WNW
46	USGS3251557	1/2 - 1 Mile ESE
L47	USGS3251578	1/2 - 1 Mile WNW
49	USGS3251540	1/2 - 1 Mile SSE
M50	USGS3251643	1/2 - 1 Mile North
M51	USGS3251642	1/2 - 1 Mile North
M52	USGS3251653	1/2 - 1 Mile North
N53	USGS3251610	1/2 - 1 Mile NE
N54	USGS3251609	1/2 - 1 Mile NE
55	USGS3251631	1/2 - 1 Mile NE
56	USGS3251652	1/2 - 1 Mile NNE
58	USGS3251563	1/2 - 1 Mile East
59	USGS3251644	1/2 - 1 Mile NNW
61	USGS3251658	1/2 - 1 Mile NE
62	USGS3251558	1/2 - 1 Mile ESE
O63	USGS3251544	1/2 - 1 Mile SE
O64	USGS3251543	1/2 - 1 Mile SE
65	USGS3251551	1/2 - 1 Mile ESE
66	USGS3251572	1/2 - 1 Mile East
69	USGS3251588	1/2 - 1 Mile ENE
70	USGS3251532	1/2 - 1 Mile SE
P71	USGS3251579	1/2 - 1 Mile West
P72	USGS3251586	1/2 - 1 Mile WNW
Q73	USGS3251651	1/2 - 1 Mile NE
74	USGS3251580	1/2 - 1 Mile West
75	USGS3251556	1/2 - 1 Mile ESE
Q76	USGS3251650	1/2 - 1 Mile NE
S78	USGS3251685	1/2 - 1 Mile NNE
79	USGS3251599	1/2 - 1 Mile WNW
R80	USGS3251686	1/2 - 1 Mile North
R81	USGS3251687	1/2 - 1 Mile North
T83	USGS3251602	1/2 - 1 Mile WNW
84	USGS3251665	1/2 - 1 Mile NNW
Q85	USGS3251661	1/2 - 1 Mile NE
88	USGS3251673	1/2 - 1 Mile NNW
T89	USGS3251603	1/2 - 1 Mile WNW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

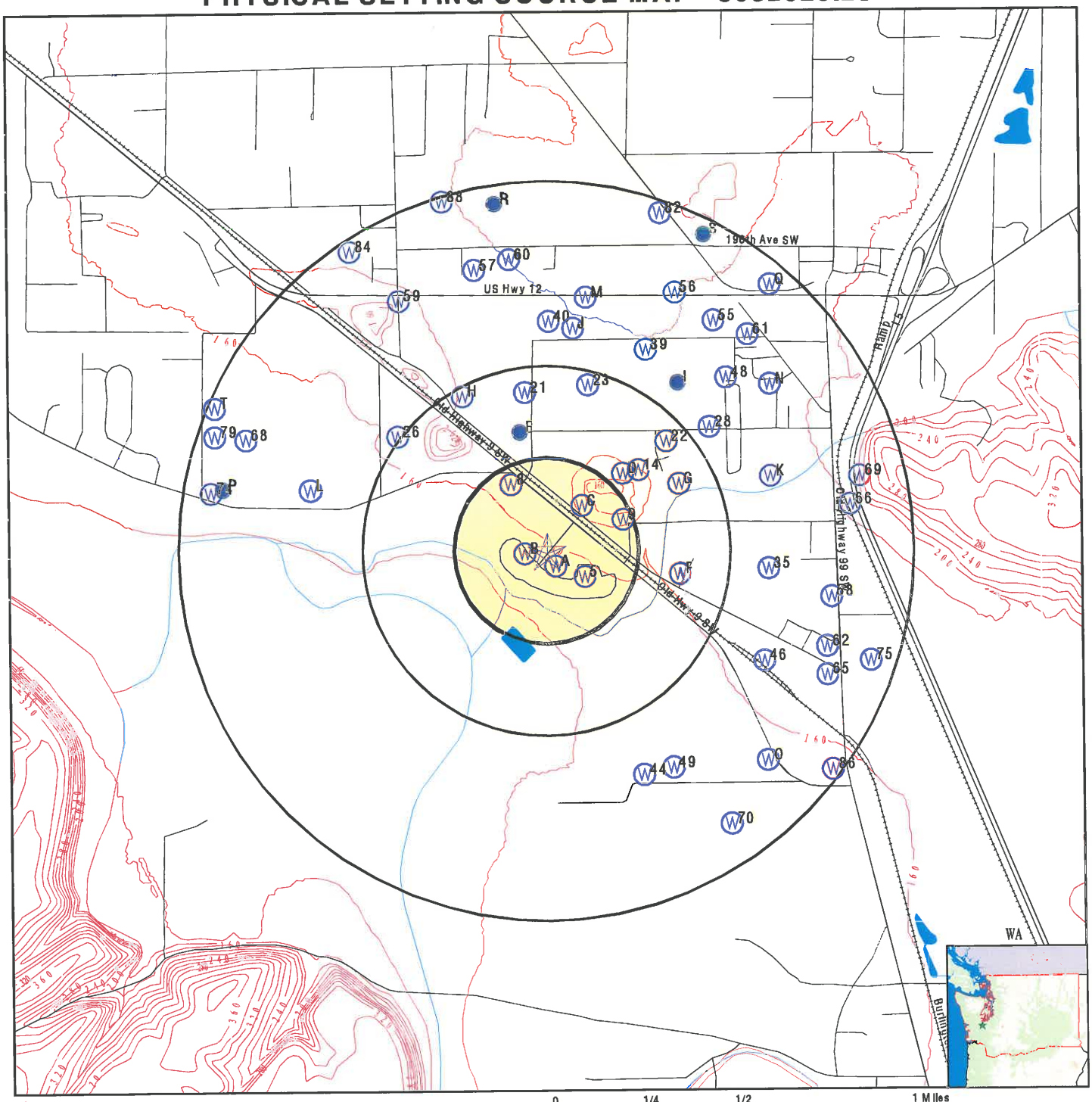
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
B3	WA7000000005055	0 - 1/8 Mile West
B4	WA7000000005056	0 - 1/8 Mile West
E12	WA7000000005090	1/4 - 1/2 Mile NNW
E13	WA7000000005092	1/4 - 1/2 Mile NNW
14	WA7000000005078	1/4 - 1/2 Mile NE
26	WA7000000005091	1/2 - 1 Mile NW
I38	WA7000000005105	1/2 - 1 Mile NE
48	WA7000000005110	1/2 - 1 Mile NE
57	WA7000000005125	1/2 - 1 Mile NNW
60	WA7000000005129	1/2 - 1 Mile North
P67	WA7000000005067	1/2 - 1 Mile WNW
68	WA7000000005089	1/2 - 1 Mile WNW
R77	WA7000000005137	1/2 - 1 Mile North
82	WA7000000005136	1/2 - 1 Mile NNE
86	WA7000000005035	1/2 - 1 Mile SE
S87	WA7000000005135	1/2 - 1 Mile NNE

PHYSICAL SETTING SOURCE MAP - 3082628.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data

SITE NAME: Maple Lane School	CLIENT: EHS International, Inc.
ADDRESS: 20311 Highway 9 SW Centralia WA 98531	CONTACT: Jason Cass
LAT/LONG: 46.7925 / 123.0284	INQUIRY #: 3082628.2s DATE: June 07, 2011 4:34 am

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
A1 **SE** **0 - 1/8 Mile** **Lower**	**FED USGS**	**USGS3251565**

Agency cd:	USGS	Site no:	464729123013801
Site name:	15N/03W-14C01		
Latitude:	464732	EDR Site id:	USGS3251565
Longitude:	1230135	Dec lat:	46.79204517
Dec lon:	-123.02763664	Coor meth:	M
Coor accr:	F	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	53
State:	53	County:	067
Country:	US	Land net:	NE NW S14 T15N R03W W
Location map:	ROCHESTER	Map scale:	24000
Altitude:	150		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Upper Chehalis. Washington. Area = 1310 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	1939
Date inventoried:	19491012	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	GLACI0-FLUVIATILE		
Well depth:	74	Hole depth:	74
Source of depth data:	other government (other than USGS)		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	1958-04-17
Water quality data end date:	1958-04-17	Water quality data count:	1
Ground water data begin date:	1939-10-12	Ground water data end date:	1939-10-12
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1939-10-12	30	

A2 **SSE** **0 - 1/8 Mile** **Lower**	**FED USGS**	**USGS3251873**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Agency cd:	USGS	Site no:	464912123040001
Site name:	15N/03W-14C02		
Latitude:	464731	EDR Site id:	USGS3251873
Longitude:	1230137	Dec lat:	46.7917674
Dec lon:	-123.02819221	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	53
State:	53	County:	067
Country:	US	Land net:	NE NW S14 T15N R03W W
Location map:	ROCHESTER	Map scale:	24000
Altitude:	145		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Upper Chehalis. Washington. Area = 1310 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19590101
Date inventoried:	19600101	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	GLACI0-FLUVIATILE		
Well depth:	80	Hole depth:	Not Reported
Source of depth data:	other government (other than USGS)		
Project number:	W.S.B.10		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	1959-11-12
Water quality data end date:	1960-05-24	Water quality data count:	2
Ground water data begin date:	1960-01-01	Ground water data end date:	1960-01-01
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1960-01-01	30	

B3
West
0 - 1/8 Mile
Lower

WA WELLS **WA7000000005055**

Objectid:	10709	Pwsid:	51195
Srcnum:	01	Pwssrcid:	5119501
Systemname:	MAPLE LANE SCHOOL		
Systemgrou:	A		
Systemtype:	Comm	Region:	SW
County:	THURSTON	Smaid:	Not Reported
Ftrespopul:	200	Resconnect:	168
Totalconne:	175	Srcname:	WELL #1 WW NO TAG
Srctype:	WW	Srcusecode:	P
Srcwelldep:	73	Township:	15
Range:	03W	Section:	14
Qtrqtrsect:	NWNW		
Longitude:	-123.029637		
Latitude:	46.792391		
Latlongmet:	GPS	Srcsuscept:	U
Srcvulnioc:	U	Srcvulnvoc:	U
Srcvulnsoc:	U	Doewelltag:	Not Reported
Srctot6mo:	440	Srctot1yr:	620

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Srctot5yr:	1390	Srctot10yr:	1970
Protection:	CFR	Pricontact:	3602733188
Priconta 1:	Not Reported	Priconta 2:	20311 OLD HWY 9 SW
Priconta 3:	CENTRALIA	Priconta 4:	WA
Priconta 5:	98531		
Priconta 6:	mcnamdf@dshs.wa.gov		
Pwseffecti:	01/01/1970	Srceffecti:	01/01/1970
Internalon:	N	Site id:	WA7000000005055

B4
West
0 - 1/8 Mile
Lower

WA WELLS **WA7000000005056**

Objectid:	10710	Pwsid:	51195
Srcnum:	02	Pwssrcid:	5119502
Systemname:	MAPLE LANE SCHOOL		
Systemgrou:	A		
Systemtype:	Comm	Region:	SW
County:	THURSTON	Smaid:	Not Reported
Ftrespopul:	200	Resconnect:	168
Totalconne:	175	Srcname:	WELL #2 WW AAF164
Srctype:	WW	Srcusecode:	P
Srcwelldep:	74	Township:	15
Range:	03W	Section:	14
Qtrqtrsect:	NWNW		
Longitude:	-123.029679		
Latitude:	46.792397		
Latlongmet:	GPS	Srcsuscept:	U
Srcvulnioc:	U	Srcvulnvoc:	U
Srcvulnsoc:	U	Doewelltag:	AAF164
Srctot6mo:	440	Srctot1yr:	620
Srctot5yr:	1390	Srctot10yr:	1970
Protection:	CFR	Pricontact:	3602733188
Priconta 1:	Not Reported	Priconta 2:	20311 OLD HWY 9 SW
Priconta 3:	CENTRALIA	Priconta 4:	WA
Priconta 5:	98531		
Priconta 6:	mcnamdf@dshs.wa.gov		
Pwseffecti:	01/01/1970	Srceffecti:	01/01/1970
Internalon:	N	Site id:	WA7000000005056

5
SE
0 - 1/8 Mile
Lower

FED USGS **USGS3251568**

Agency cd:	USGS	Site no:	464730123013001
Site name:	15N/03W-14C03		
Latitude:	464730	EDR Site id:	USGS3251568
Longitude:	1230130	Dec lat:	46.79148964
Dec lon:	-123.02624768	Coor meth:	M
Coor accr:	T	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	53
State:	53	County:	067
Country:	US	Land net:	NE NW S14 T15N R03W W
Location map:	Not Reported	Map scale:	Not Reported

Altitude:	9999.99		
Altitude method:	Unknown		
Altitude accuracy:	999		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Upper Chehalis. Washington. Area = 1310 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19700904
Date inventoried:	Not Reported	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	62	Hole depth:	62
Source of depth data:	driller		
Project number:	WA00228		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1970-09-08	Ground water data end date:	1970-09-08
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1970-09-08	30	

C6
NE
1/8 - 1/4 Mile
Higher

FED USGS **USGS3251574**

Agency cd:	USGS	Site no:	464740123013101
Site name:	15N/03W-11P01		
Latitude:	464740	EDR Site id:	USGS3251574
Longitude:	1230131	Dec lat:	46.79426735
Dec lon:	-123.02652557	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	53
State:	53	County:	067
Country:	US	Land net:	SE SW S11 T15N R03W W
Location map:	ROCHESTER	Map scale:	24000
Altitude:	160		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Upper Chehalis. Washington. Area = 1310 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19600101
Date inventoried:	19600101	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	56	Hole depth:	Not Reported
Source of depth data:	other government (other than USGS)		
Project number:	W.S.B.10		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported

Maple Lane School
20311 Highway 9 SW
Centralia, WA 98531

Inquiry Number: 3082628.4
June 01, 2011

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
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Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

Aerial Photography June 01, 2011

Target Property:

20311 Highway 9 SW
Centralia, WA 98531

Year	Scale	Details	Source
1941	Aerial Photograph. Scale: 1"=750'	Panel #: 46123-G1, Rochester, WA;/Flight Date: June 11, 1941	EDR
1951	Aerial Photograph. Scale: 1"=750'	Panel #: 46123-G1, Rochester, WA;/Flight Date: July 23, 1951	EDR
1956	Aerial Photograph. Scale: 1"=1000'	Panel #: 46123-G1, Rochester, WA;/Flight Date: April 09, 1956	EDR
1968	Aerial Photograph. Scale: 1"=1000'	Panel #: 46123-G1, Rochester, WA;/Flight Date: September 04, 1968	EDR
1975	Aerial Photograph. Scale: 1"=1000'	Panel #: 46123-G1, Rochester, WA;/Flight Date: September 13, 1975	EDR
1980	Aerial Photograph. Scale: 1"=1000'	Panel #: 46123-G1, Rochester, WA;/Flight Date: July 29, 1980	EDR
1982	Aerial Photograph. Scale: 1"=500'	Panel #: 46123-G1, Rochester, WA;/Flight Date: August 20, 1982	EDR
1990	Aerial Photograph. Scale: 1"=750'	Panel #: 46123-G1, Rochester, WA;/Flight Date: July 10, 1990	EDR
1992	Aerial Photograph. Scale: 1"=500'	Panel #: 46123-G1, Rochester, WA;/Flight Date: June 18, 1992	EDR
2006	Aerial Photograph. Scale: 1"=604'	Panel #: 46123-G1, Rochester, WA;/Flight Date: January 01, 2006	EDR


INQUIRY #: 3082628.4
YEAR: 1941
= 750'
N


INQUIRY #: 3082628.4
YEAR: 1951
= 750'
N


INQUIRY #: 3082628.4
YEAR: 1956
= 1000'
N


INQUIRY #: 3082628.4
YEAR: 1968
= 1000'
N


INQUIRY #: 3082628.4
YEAR: 1975
= 1000'
N


INQUIRY #: 3082628.4
YEAR: 1980
= 1000'
N


INQUIRY #: 3082628.4
YEAR: 1982
= 500'
N


INQUIRY #: 3082628.4
YEAR: 1990
= 750'
N


INQUIRY #: 3082628.4
YEAR: 1992
= 500'
N


INQUIRY #: 3082628.4
YEAR: 2006
= 604'
N

APPENDIX C: DEARTMENT OF ECOLOGY DOCUMENTS

December 4, 2008

Chuck Cline
Washington State Department of Ecology
P.O. Box 47775
Olympia, Washington 98504

Re: Maple Lane School Historical Investigation and Current Site Condition Summary (Revised)
7476-07

Dear Mr. Cline:

On behalf of the Washington Department of Social and Health Services (DSHS), we are submitting this revised letter report for the Maple Lane School Site (Facility No. 63149499) located in Centralia, Washington, to support obtaining a No Further Action determination under the Washington State Department of Ecology's (Ecology) Voluntary Cleanup Program (VCP). We initially submitted the VCP application and supporting documents to Ecology in December of 2007. Based on your initial review comments provided to Mr. Chuck Cole of DSHS in February 2008 and the results of our July 9, 2008, meeting, we have revised this letter report to better support Ecology's review of our NFA determination request.

This letter report includes a detailed summary of the diesel release from the former underground storage tank (UST), subsequent investigations, cleanup activities, and current site conditions. We have prepared this detailed letter report in an effort to expedite Ecology's review of existing reports on the subject property. Because we believe site conditions satisfy MTCA Method A cleanup requirements for protectiveness of human health and the environment, our goal is to receive an opinion letter stating that no further actions are necessary.

SITE BACKGROUND

The Maple Lane School (the site) is located at 20311 Old Highway 9 SW in Centralia, Washington (Figure 1). A 6,000-gallon fiberglass UST was installed on site in approximately 1980 for use as a backup fuel source for the boiler plant. The diesel UST was located southeast of the boiler plant in a grassy mound, adjacent to the back entrance of the building (Figure 2). In May of 1997, facility personnel realized that approximately 600 gallons of product were missing from the UST a few days

1700 Westlake Avenue North, Suite 200
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Tel 206.324.9530

after it having been refilled. The fuel supplier emptied the UST to prevent further losses and conducted a tank tightness test. A release was confirmed, and Ecology was notified.

On June 25, 1997, Olympus Environmental, Inc. (Olympus) removed the UST. A small hole was observed approximately 14 inches from the top of the UST (located about 4 feet below grade as installed). Olympus observed some isolated diesel-impacted soils around the fill spout and weathered and fresh diesel-impacted soils beneath the UST (about 9 feet below grade). Based on the use of the UST and the location of the hole observed in the tank, diesel releases up to 600 gallons at a time may have occurred. Because the UST was used for backup, these releases would have occurred when the UST was refilled and not immediately used. Approximately 40 cy of diesel-impacted soil were removed from beneath the UST. The tank removal excavation extended to about 13 feet below grade but did not extend further due to slope stability concerns. Olympus collected three side wall samples (A, B, and C) and two excavation floor samples (D and E), which were analyzed for diesel-range organics (DRO) by Ecology Method NWTPH-Dx. The three side wall samples had DRO concentrations at or below the 2,000 mg/kg MTCA Method A cleanup level for diesel-range petroleum (Table 1). Analytical results for the two floor soil samples indicate that DRO-impacted soils remained at concentrations up to 20,000 mg/kg, which exceeds the MTCA Method A cleanup level of 2,000 mg/kg. The UST was disposed of off site by Coastal Tank Cleaning, Inc. of Seattle. A project timeline is included on Figure 3.

INITIAL SITE INVESTIGATIONS

Unless otherwise noted, groundwater and soil samples during the initial investigations were analyzed by the following methods:

- Diesel- and oil-range total petroleum hydrocarbons by Ecology Method NWTPH-Dx;
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8021B; and
- Polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270D-SIM.

On July 11, 1997, Olympus advanced an additional soil boring directly through the former release area to better define the depth of soil impacted by the DRO release (sample location E). Observations began at a depth of approximately 9 feet, the depth of the base of the former UST. What appeared to be fresh diesel was observed in soil from the depth interval of 12.3 to 16.7 feet. What appeared to be weathered diesel was observed in soil samples from about 19 feet down to the water table, which was encountered at a depth of 31.1 feet. Two soil samples from location E (BORE-4D and BORE-8H) were collected and submitted for DRO analysis; the groundwater samples were also analyzed for BTEX. Soil samples collected from depth intervals 18.8 to 19.8 feet

(BORE-4D) and 28.8 to 30.3 feet below grade (BORE-8H) contained DRO concentrations of 16,000 and 5,100 mg/kg, respectively (Table 1).

In February 1998, Nowicki & Associates (Nowicki) installed four monitoring wells to depths of 30 to 35 feet. Monitoring wells MW1 and MW2 were installed on the grassy mound about 20 feet north and east of the former UST and monitoring wells MW3 and MW4 were installed in the driveway, 20 feet south (well MW3) and 60 feet southwest (well MW4) of the former UST (Figure 2). Monitoring well MW4 was damaged and, therefore, abandoned. Monitoring well MW5 was installed about 30 feet east of former MW4 in October 1998 as a replacement. Soil samples from monitoring well borings MW3 (at 24.5 feet), MW4 (at 28.5 feet), and MW5 (at 20.5 feet) contained DRO concentrations of 3,170, 3,310, and 9,000 mg/kg, respectively, above the MTCA Method A cleanup level of 2,000 mg/kg. The soil sample from the MW3 boring at a depth of 29.8 feet contained a DRO concentration of 820 mg/kg (Table 1).

Nowicki began quarterly groundwater monitoring in March of 1998 and completed the first six quarterly monitoring events. The sampling procedure consisted of first purging the wells using a pump, followed by groundwater sample collection using a stainless steel or polyethylene bailer. Nowicki submitted groundwater samples for analysis of diesel- and oil-range total petroleum hydrocarbons.

In November 1999, Nowicki advanced six additional soil borings (SB-1 through SB-6) to better define the extent of DRO-impacted soil. Soil samples from these borings were submitted for diesel- and oil-range organic analyses and soil samples from SB-5 (advanced in the location of the former UST) at 30 feet below grade were also submitted for BTEX and PAH analyses. This boring was completed as monitoring well MW6. The highest DRO concentration (26,000 mg/kg) was detected in a soil sample from boring SB-6 immediately above the water table at a depth of 25 feet below grade (Table 1). According to Nowicki, "the sample was collected in the second attempt and may not represent the true average diesel concentration in the soil," indicating that the sample may have been contaminated or otherwise compromised. As shown in Table 1, xylenes and five non-carcinogenic PAHs were also detected in the soil boring samples at concentrations below MTCA Method A cleanup levels.

Soil boring SB-5, located in the former UST excavation, was completed as monitoring well MW6. In February 2000, Michael Lam of Nowicki assessed the groundwater conditions in MW6 and noted that free-phase product was not measurable. However, Mr. Lam observed "heavy oil sheen," the presence of "oil droplets clinging to the outer wall of the bailer," and noted a "very strong diesel odor." He also visually inspected the wetland and slough areas located downgradient (south) of the boiler plant and observed no evidence of oil sheen on the sloped ground surface. He was not able to sample surface water from the slough due to low water levels.

Hart Crowser completed the seventh quarterly groundwater monitoring sampling event in November 2001. Due to low water levels, MW1 was not sampled. Monitoring wells MW2 and MW6 contained only 1 foot of standing water and were sampled using a bailer, which resulted in poor quality, silty samples. Sufficient groundwater was available in monitoring wells MW3 and MW5 to use low-flow sampling techniques, which minimizes well disturbance, decreases the potential for silt collection, and thereby improves overall sample quality. Groundwater samples were submitted for DRO, BTEX, and PAH analyses. DRO was only detected in MW6 at a concentration of 44 mg/L; analytes were non-detect in other wells (Tables 2 and 3).

Hart Crowser collected three surface water (SW-1 through SW-3) and five sediment samples (SD-1 through SD-5) from approximately 140 feet along the slough to assess potential DRO impacts from the UST release. DRO was non-detect in these eight samples, although a heavy oil-range organic concentration of 340 mg/kg was detected in sediment sample SD-1 (Table 4). The apparent high naturally occurring organic content in the slough sediment could have interferred with the NWTPH analysis, resulting in false hits or artificially high concentrations. In addition, this detection of heavy oil-range organics appeared to be unrelated to the UST diesel release as heavy oil-range organics were not previously detected on the site.

ADDITIONAL SITE INVESTIGATIONS AND CLEANUP ACTIONS

Hart Crowser installed five wellpoints (WP-1, WP-2, WP-3A, WP-3B, and WP-4) along the slough to establish consistent and representative sampling locations for groundwater entering the slough from the former UST area. Wellpoints WP-3A and WP-3B were installed downgradient of the former UST area, while WP-1, WP-2, and WP-4 were installed cross-gradient of the expected groundwater discharge location (Figure 2). Wellpoints were advanced until sufficient groundwater was encountered to collect a representative sample. Refusal prevented WP-3A from reaching the required depth; therefore, WP-3B was advanced between WP-3A and the slough. WP-3A was left in place as a possible high water monitoring location during future monitoring events. The wellpoint top of casing (TOC) elevations were surveyed relative to a local benchmark and existing monitoring well elevations.

WP-1 was intended to be a sampling location at the downgradient end of the slough. Based on site topography and heavy vegetation on the slope, WP-1 was located on the east side of the access road across from the lift station (Figure 2). Groundwater samples from WP-1 collected in September 2001 contained a total cPAH concentration of 0.65 ug/L, which exceeds the MTCA Method A cleanup level for cPAHs of 0.1 ug/L. However, these exceedances were not representative of site groundwater conditions for several reasons. First, it was difficult to collect representative groundwater samples from WP-1 due to low yield and extremely high turbidity.

Second, analysis of site groundwater elevations suggested that WP-1 likely contained perched water located between the native soil and fill used to construct the embankment of the access road, not site groundwater. Because WP-1 provided no physical or chemical data useful in understanding the UST lease or impacted area, it was not monitored during subsequent quarterly groundwater monitoring events and was decommissioned in December 2002.

Quarterly Groundwater Monitoring September 2001 to December 2004

Hart Crowser conducted fourteen quarterly groundwater monitoring events from the third quarter 2001 to the fourth quarter 2004 (Table 2). Groundwater samples were collected from all monitoring wells and wellpoints (Figure 2), as conditions permitted, and were submitted for analysis of the following:

- Diesel- and oil-range total petroleum hydrocarbons by Ecology Method NWTPH-Dx;
- Inorganic ions nitrite, nitrate, and sulfate by EPA Method 300A; and
- Total suspended solids (TSS) by EPA Method 160.2;

with select samples also submitted for analysis of:

- BTEX by EPA Method 8021B; and
- PAHs by EPA Method 8270D-SIM.

Following confirmation that DRO-impacted groundwater did not extend to the slough, wellpoint sampling frequency was reduced to include seasonal high and low groundwater conditions only. The quarterly monitoring events also initially included sampling and analysis of on-site stockpile material from the removal of the UST. However, after March 2002 stockpile sampling and analysis ceased because data indicated MTCA Method A cleanup levels had been achieved (Table 5). Stockpile soil was recommended for use as on-site fill.

Monitoring well MW6 was the only sample location with MTCA Method A exceedances during quarterly groundwater monitoring events prior to the installation of MW7 (see below), with groundwater DRO concentrations ranging from non-detect to 78 mg/L (Table 2). Elevated suspended solid concentrations were also consistently observed in MW6 groundwater, because of the fine-grained nature of the soil at this location. MW6 was redeveloped in December 2001 in an effort to remove silty material that had presumably accumulated in the well, but MW6 groundwater samples again contained gray silty sediment during the quarterly monitoring event in June 2002. The highest DRO concentration (MW6, 78 mg/L) was observed during the June 2002 groundwater sampling event, again likely the result of DRO-impacted silt in the sample. Monitoring well MW6

was investigated in December 2002 using a down borehole camera but no cracks or physical abnormalities were observed.

Groundwater elevations in monitoring wells and wellpoints were also collected as a part of the quarterly groundwater monitoring events (Table 6). Representative groundwater elevation contours based on water levels measured during the most recent July 2007 monitoring event are indicated on Figure 2. Groundwater elevation contours consistently indicated that groundwater flows from the UST release area toward the slough.

Monitored Natural Attenuation

Natural attenuation is a term that describes the combined effect of natural processes (e.g., biodegradation, dispersion, and dilution) that collectively reduce constituent concentrations over time. Indigenous subsurface microorganisms may couple DRO oxidation to reduction of dissolved oxygen (DO), nitrate, and sulfate to gain energy for growth, thereby "biodegrading" DRO. To monitor natural attenuation in site groundwater, we have monitored changes in concentrations of DO, nitrate, nitrite, sulfate, and DRO concentrations.

DO concentrations in groundwater upgradient of the former UST (MW1 and MW2) have varied between 3 and 6 mg/L, while DO concentration in source area groundwater (MW6) averaged 1.3 mg/L (Table 3). This relative decrease in DO concentrations suggests biodegradation through predominantly aerobic processes. Average DO concentrations downgradient of the former UST (MW3 and MW5) were 5 and 6 mg/L, respectively. This relative increase in DO concentrations downgradient suggests that there may be less oxygen demand at these locations, associated with less DRO-impacts. Lower groundwater DO concentrations in wellpoints located along the slough are likely associated with high naturally occurring organic content typical of sedimentary environments.

Nitrate may be used as an alternate electron acceptor for biodegradation of DRO. Nitrate concentrations in groundwater upgradient of the former UST (MW1 and MW2) have varied between 2.3 and 4.3 mg/L, while nitrate concentrations in source area groundwater (MW6) have varied between 0.2 and 2.1 mg/L (Table 7). Nitrite is a very unstable compound; therefore, any detection of nitrite is indicative of nitrate reduction. Nitrite has only been detected in monitoring well MW6, indicating nitrate reduction in the DRO source zone. Nitrite has also been detected in wellpoints WP-1, WP-3B, and WP-4; however, this is likely a result of decomposition of the naturally occurring organic matter typical of sedimentary environments.

Following depletion of nitrate and other more energetically favorable electron acceptors, sulfate may serve as an alternate electron acceptor for microbial DRO oxidation. Sulfate concentrations

have remained relatively constant in site groundwater, indicating sulfate reduction is not a significant microbial process (Table 7).

Hydrogen Peroxide Injections

The following quantities and concentrations of hydrogen peroxide were injected into MW6 to oxidize residual DRO and, thereby, to reduce contaminant mass in the vicinity of the former UST:

- **May 2003,** 300 gallons of 10 percent hydrogen peroxide;
- **September 2003,** 300 gallons of 35 percent hydrogen peroxide; and
- **March 2004,** 350 gallons of 35 percent hydrogen peroxide.

These injections took place in accordance with Ecology's Underground Injection Control Program requirements (site registration number 20070). Injection flow rates were adjusted to mound up to 10 feet of head within the well casing, which was intended to maximize treatment of shallow soil in the targeted source zone surrounding MW6. Repeated injections of hydrogen peroxide improved the aesthetic quality of the groundwater, eliminated petroleum odor, and ultimately reduced contaminant mass.

RECENT SITE INVESTIGATIONS

Previous DRO exceedances of MTCA Method A cleanup levels for groundwater were only observed in MW6. Due to persistent problems with sediment accumulation in MW6, possibly due to well construction issues, monitoring well MW7 was installed to replace MW6 in April 2005 at an adjacent location (approximately 5 feet away). A soil sample (S-5) from the MW7 boring at a depth of 22.5 feet below grade (above groundwater table) contained a DRO concentration of 1,500 mg/kg (Table 1). An additional soil sample (S-7) collected from the MW7 boring at a depth of 32.5 feet below grade (below groundwater table) contained a DRO concentration of 4,800 mg/kg, as well as a total naphthalene concentration of 9.9 mg/kg (Table 1). This soil sample was selected for chemical analysis because it appeared to be the most highly petroleum-impacted interval within boring MW7. Examination of the NWTPH-Dx chromatograms indicates that the residual diesel contamination associated with these soil samples was fairly weathered and was depleted in some of the more mobile, lower molecular weight hydrocarbons.

DRO concentrations were lower in soil boring samples collected from MW7 than those detected in MW6 prior to the hydrogen peroxide treatments. Whereas DRO concentrations of 7,400 and 8,600 mg/kg were noted in MW6 soil samples collected at depths of 20 and 30 feet below ground

surface, respectively (Table 1), DRO concentrations within this same approximate depth interval in MW7 ranged from 1,500 to 4,800 mg/kg.

Well MW7 was developed directly following installation and was sampled the following month in May 2005. Groundwater samples collected from MW7 in May 2005 and October 2005 contained elevated concentrations of both diesel and TSS (Table 2). Because diesel can sorb to fine particles that contribute to TSS, it is possible that elevated diesel concentrations in MW7 samples were associated with TSS and not ambient groundwater. Results of a regression analysis confirmed that diesel and TSS concentrations were significantly correlated in MW6 and MW7 groundwater samples (Table 8). Based on this correlation, we began a program of developing well MW7 after sampling to remove TSS from the well casing in preparation for the next sampling round. Diesel concentrations in groundwater from well MW7 have not exceeded MTCA Method A cleanup levels since we began this well development practice. Semi-annual sampling and analysis of well MW7 began in May 2006 and continued until July 2007.

We discussed these and other findings with Ecology in March 2007, and expressed our desire to achieve a letter of no further action at the site. Ecology suggested that we perform one additional round of groundwater sampling and analysis at well MW7 (completed March 2007), followed by a comprehensive round of groundwater sampling and analysis after the first of the fiscal year. Groundwater samples collected from wells MW1, MW2, MW3, MW5, and MW7 on July 23, 2007, were non-detect for diesel, BTEX, and PAH compounds (Tables 2 and 3).

COMPLIANCE WITH MTCA REQUIREMENTS FOR NO FURTHER ACTION

Since discovery of the leaking UST and subsequent removal of 40 cy of DRO-impacted soil in 1997, there have been no additional petroleum releases at the site. Sediment sampling locations and monitoring wells were placed upgradient of the source zone (MW2), within the source zone (MW6, subsequently replaced by MW7), downgradient of the source zone (MW1, MW3, MW4, and MW5 [replaced MW4]), and in the slough (WP-1, WP-2, WP-3B, and WP-4) to collect sufficient data to formulate an understanding of contaminant distribution and potential migration on the site. Results of the extensive site soil and groundwater characterization performed by Hart Crowser and others over the last 10 years have shown that DRO did not migrate extensively from the source zone and did not reach the slough. The following section describes current site conditions and provides justification for taking "no further action" prior to site closure.

Exposure Pathways

Direct Contact Pathway. Diesel released from the UST migrated downward via gravity through the unsaturated soil directly beneath the UST, ultimately reaching the groundwater table at a depth of approximately 30 feet below ground surface. While diesel is relatively immobile in unsaturated soil, it floats on the groundwater table and can be transported along the groundwater surface, thus creating a "smear zone" in the soil at the water table. Indeed, elevated DRO concentrations were detected downgradient in MW3, MW4, and MW5 soil boring samples at depths ranging from 20 to 30 feet, corresponding to the groundwater table smear zone (Table 1). Other than the source zone, we would not expect to find UST-associated DRO impacts in soil at depths less than 17 feet because the minimum depth to groundwater measured on site is 17 feet below ground surface (MW5, December 2001, Table 6). Other than soil samples collected from the initial UST excavation and boring location E, no DRO impacts have been observed at depths less than 15 feet below ground surface on the site.

DRO-impacted soil remained directly beneath the former UST at depths greater than 13 feet but select data suggest that these impacts have attenuated to meet MTCA Method A requirements. For example, a single soil sample from boring SB-5 (advanced in the location of the former UST in 1999) at a depth of 10 feet below grade was non-detect for DRO. MW6 also received multiple injections of hydrogen peroxide in 2003 and 2004, which reduced contaminant mass in the source zone. MW7 was installed in April 2005 following these injections and field screening (including field photoionization testing) revealed no signs of impacts at depths less than 22 feet. The soil sample collected from this location (S-5 22 feet depth, Table 1) contained a DRO concentration of 1,500 mg/kg, which is below the MTCA Method A cleanup level for soils. These data collectively suggest that DRO-impacted soil remains on site at depths greater than 15 feet. Thus, available site data indicate that direct contact is not a potential exposure pathway.

Terrestrial Ecological Evaluation. Per WAC 173-340-7490(4)(b) and WAC 173-340-7491(a), the site satisfies the standard point of compliance for soil contamination and is exempt from requirements for institutional controls and a separate terrestrial ecological evaluation.

Soil Vapor Pathway. Weathered diesel has few to no volatile constituents and, therefore, poses no risk of vapor migration through soil. Indeed, inspection of the chromatogram resulting from NWTPH-Dx analysis of a MW7 groundwater sample collected in October 2005 confirmed the presence of high molecular weight hydrocarbons typical of weathered diesel. In addition, BTEX compounds were consistently below detection limits in site groundwater (Table 2) and site soil samples (Table 5). Therefore, soil vapor is not considered to be a potential exposure pathway for this site.

Soil to Groundwater Pathway. Based on historical groundwater impacts observed at the site, the soil to groundwater pathway is considered to be a potential exposure pathway and was the focus of remedial actions completed at the Maple Lane site. The multiple hydrogen peroxide injections performed in 2003 and early 2004 improved the aesthetic quality of the groundwater, eliminated petroleum odor, and ultimately reduced subsurface contaminant mass.

Under MTCA (WAC 173-340-747[3]), Ecology has established seven methods that may be used to evaluate compliance with groundwater protection criteria including using partitioning models, leaching tests, and empirical demonstrations. For the Maple Lane site, we have selected use of the empirical approach outlined in WAC 173-340-747(9) including demonstrating that measured groundwater concentrations are less than or equal to applicable groundwater cleanup levels and measured soil concentrations will not cause exceedances of these groundwater cleanup levels in the future (i.e., system is at equilibrium). Multiple lines of evidence indicate that residual weathered diesel occurrences in site soils no longer pose a risk to groundwater quality.

- First, except for MW6 and MW7 within the source area, groundwater DRO concentrations in site monitoring wells and wellpoints have not exceeded the MTCA Method A cleanup level of 0.5 mg/L since August 19, 1999. No exceedances of Method A drinking water cleanup levels for volatile aromatics (BTEX) or naphthalenes have been observed in site groundwater. Due to the fine-grained nature of the soil, MW6 groundwater frequently contained elevated DRO and elevated suspended solids concentrations. It was difficult to collect representative groundwater samples from monitoring well MW6 so it was ultimately replaced by MW7, where suspended solids were also problematic. A regression analysis confirmed that concentrations of DRO and suspended solids were significantly correlated in MW6 and MW7 groundwater samples (Table 8). Thus, Hart Crowser began a practice of redeveloping MW7 following each sampling event in preparation for the following sampling event. Since this practice of well development began in December 2005, DRO has been either non-detect or detected at concentrations below MTCA Method A cleanup levels in MW7 groundwater samples. Results of an additional comprehensive groundwater sampling and analysis event, performed per Ecology's suggestion in July 2007, confirmed that DRO, BTEX, and PAH concentrations remain non-detect in site monitoring wells.

- Second, DRO concentrations in site soil are below the estimated residual saturation concentration for silty sand (13,333 mg/kg, Ecology 2001). Although the observed DRO concentration of 4,800 mg/kg in soil at the water table from MW7 exceeds the MTCA Method A cleanup level for soil of 2,000 mg/kg, this cleanup level was established based on residual saturation conditions in coarse gravel and, therefore, is highly conservative. The DRO soil exceedance of 4,800 mg/kg was detected in a silty sand layer and is well below the residual saturation for middle distillates (weathered diesel) in silty sand of 13,333 mg/kg (Ecology 2001),

thus demonstrating that soil concentrations will not result in NAPL accumulation on or in groundwater per WAC 173-340-747(10)(d)(ii). . Given that no measureable free phase product has been encountered in site monitoring wells since the hydrogen peroxide injections were completed provides further evidence that residual diesel soil concentrations do not exceed residual saturation.

- Third, observed diesel concentrations in both soil and groundwater appear to be decreasing over time. Since the original source of the diesel release was removed over 10 years ago, this trend is expected to continue. Therefore, no future exceedances of groundwater cleanup criteria are anticipated.

Compliance with Cleanup Standards

Following completion of remedial actions at the Maple Lane site, groundwater protection is the only potential exposure pathway of concern. An empirical demonstration conducted per WAC 173-340-747(9) has demonstrated that residual diesel concentrations in site soils will not cause contamination of groundwater at concentrations exceeding applicable cleanup levels either through dissolved or residual phase transport. In addition, natural attenuation indicators suggest that biodegradation is occurring and concentrations will continue to decrease through natural attenuation over time.

REFERENCES

Ecology 2001. Concise Explanatory Statement, for Amendments to the Model Toxics Control Act Cleanup Regulation, Chapter 173-340 WAC. Prepared by the Washington State Department of Ecology Toxics Cleanup Program. Publication 01-09-043. Olympia, Washington. February 12, 2001.

LIMITATIONS

Work for this project was performed, and this letter report prepared, in accordance with generally accepted professional practices for the nature and conditions of the work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of the Washington Department of Social and Health Services for specific application to the referenced property. This letter report is not meant to represent a legal opinion. No other warranty, express or implied, is made.

All MTCA cleanup levels included in this report are provided for comparison purposes only and are based on our understanding of cleanup levels required by Ecology for similar projects. They do not represent MTCA interpretations. By using them for comparison purposes, we are not implying that remedial actions at this site are required under MTCA. Specific MTCA interpretations may involve separate calculations and determinations upon which a range of cleanup standards may be established by Ecology.

Any questions regarding our work and this letter report, the presentation of the information, and the interpretation of the data are welcome and should be referred to the undersigned.

We trust that this letter report meets your needs.

Sincerely,

HART CROWSER, INC.

Mike Ehlebracht

MIKE EHLEBRACHT, LHG
Principal Geochemist

William B. Abercrombie

WILLIAM B. ABERCROMBIE
Principal

Attachments:
Table 1 – Analytical Results for Soil Samples
Table 2 – Analytical Results for Groundwater Samples – TPH-Dx and BTEX
Table 3 – Analytical Results for Groundwater Samples – PAHs
Table 4 – Analytical Results for Sediment, Surface Water, and Slag Samples
Table 5 – Analytical Results for Stockpile Soil Samples
Table 6 – Relative Groundwater Elevation Data
Table 7 – Analytical Results for Groundwater Samples - Inorganic Anions
Table 8 – Results of Outlier t-test, Regression Analysis, and r2 Significance Test
Figure 1 – Vicinity Map
Figure 2 – Site Plan with Sample Locations
Figure 3 – Project Timeline

cc: Chuck Cole, Washington Department of Social and Health Services, Maple Lane School

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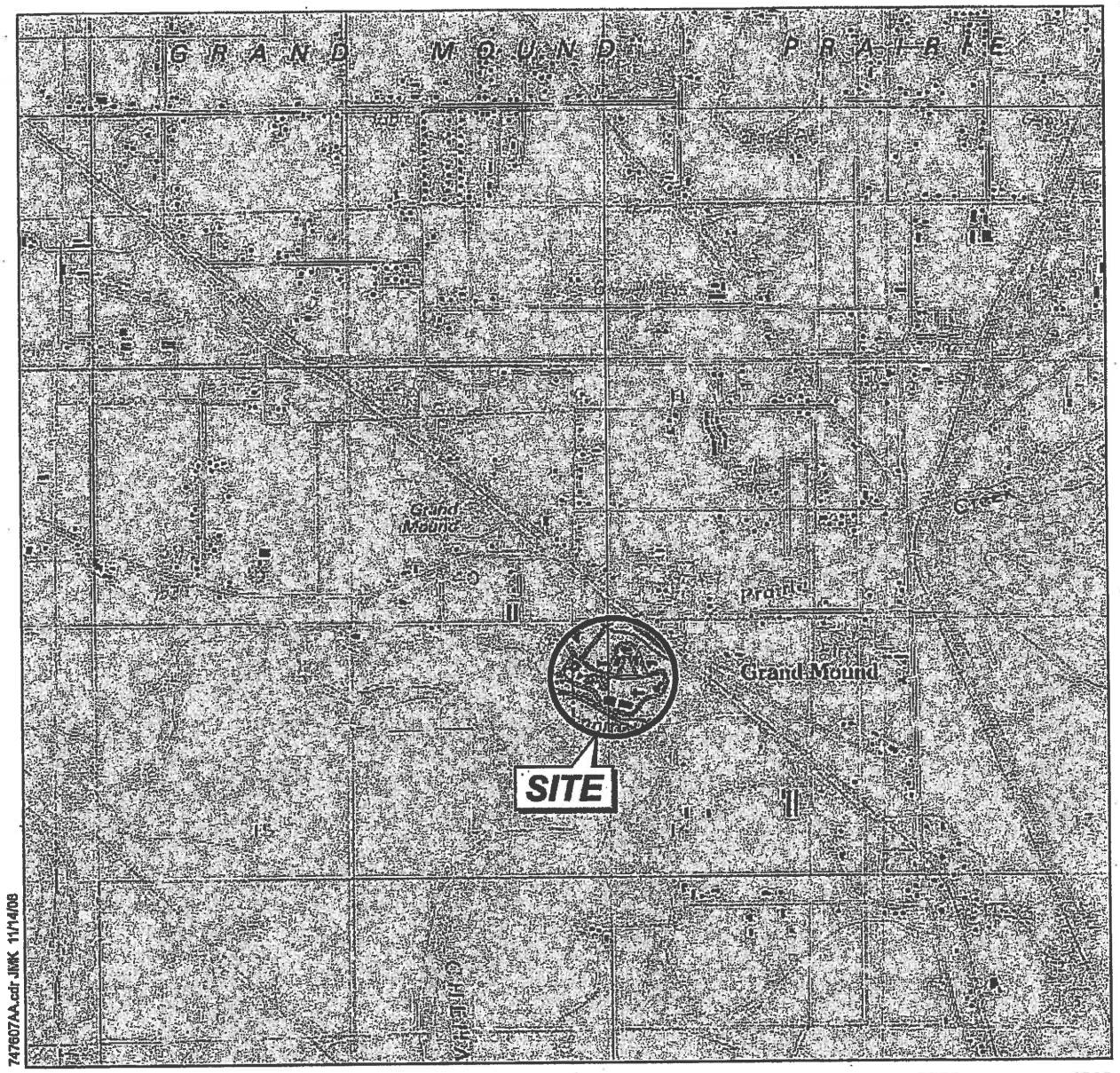
Vicinity Map



HARTCROWSER

7476-07 *11/08*

Figure 1

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

CERTIFIED MAIL
7007 2560 0000 6214 0112

January 9, 2009

Mr. Chuck Cole
Washington Department of Social and Health Services
Lands and Buildings Division
P.O. Box 45848
Olympia, WA 98504-5848

Re: No Further Action at the following Site:

- **Site Name:** Maple Lane School
- **Site Address:** 20311 Old Highway 9 S.W., Centralia
- **Facility/Site No.:** 63149499
- **VCP Project No.:** SW0926

Dear Mr. Cole:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Maple Lane School facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

NO. Ecology has determined that no further remedial action is necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following release:

- Petroleum hydrocarbons as diesel-range organic (DRO) fuel into the Soil and Ground Water.

Enclosure A includes a detailed description and diagram of the Site, as currently known to Ecology.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. Olympus Environmental, Inc., **Emergency Response, UST Removal, Due to Heating Oil Release, Maple Lane School, 20311 Old Highway 9 S.W., Centralia, Washington**, August 8, 1997.

2. Nowicki & Associates, Inc., **Detailed Site Characterization Report, Maple Lane School, 20311 Old Highway 9 Southwest, Centralia, Washington**, January 26, 2000.

3. HartCrowser, **Initial Site Evaluation and Third Quarter Monitoring Results**, November 27, 2001.

4. Washington State Department of Ecology, **Initial Investigation Field Report, ERTS#: 535670, Site Name: Maple Lane School**, October 20, 2003.

5. Thurston County Health Department, **Site Hazard Assessment, Worksheet 1, Summary Score Sheet, Maple Lane School, 20311 Old Hwy. 9 SW, Centralia, WA 98531-9620**, June 2004.

6. HartCrowser, **Maple Lane School Historical Investigation and Current Site Condition Summary**, December 19, 2007.

7. HartCrowser, **Maple Lane School Historical Investigation and Current Site Condition Summary (Revised)**, December 4, 2008.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. You can make an appointment by calling the SWRO resource contact at (360) 407-6365.

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that **no further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Ecology has determined your characterization of the Site is sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A.**

2. Establishment of cleanup standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site meet the substantive requirements of MTCA.

a. Cleanup levels.

Cleanup levels have been applied to DRO or total petroleum hydrocarbons. It has been determined that benzene, toluene, ethylbenzene, and total xylenes (BTEX), and carcinogenic polynuclear aromatic hydrocarbons are constituents not of concern. In addition, polychlorinated biphenyls (PCBs) and metals have been determined to not be constituents of concern.

MTCA Method A ground-water cleanup levels have been applied to DRO in the ground water. A value of 0.5 milligram per liter (mg/l) or the equivalent 500 microgram per liter (ug/l) is the ground-water cleanup level.

MTCA Method B soil cleanup levels have been applied to the soil throughout the site. The direct contact pathway has been eliminated as a pathway of concern. Soil residual concentrations that exceed the Method A cleanup level (2,000 milligram per kilogram [mg/kg]) are present below 15 feet below ground surface (ft bgs) and do not contribute to the direct contact pathway risk. In addition, concentrations that would contribute to terrestrial ecological risk are below the point of compliance for this pathway. The soil vapor pathway is not an issue since BTEX is not present and MTCA requires an evaluation for DRO when concentrations exceed 10,000 mg/kg.

The soil to ground-water pathway is a potential exposure pathway and has been the focus of remedial actions completed at the Maple Lane School site. A cleanup level of 10,000 mg/kg has been established for the vadose zone (unsaturated zone) and saturated area (below the water table) of the site. This is the approximate site-specific residual saturation value that would be acceptable at this site. A concentration of 4,800 mg/kg is a residual concentration that has been determined to be still present following construction of monitoring well MW-7 following remediation activities at the site.

These Method B soil cleanup levels have been developed as a result of an empirical demonstration as allowed in WAC 173-340-747(9) that show that "measured soil concentrations will not cause an exceedance of the applicable ground water cleanup levels established under WAC 173-340-720." The requirements to demonstrate compliance are the following:

- "The measured ground water concentration is less than or equal to the applicable ground water cleanup level established under WAC 173-340-720; and

- The measured soil concentration will not cause an exceedance of the applicable ground water cleanup level established under WAC 173-340-720 at any time in the future. Specifically, it must be demonstrated that a sufficient amount of time has elapsed for migration of hazardous substances from soil into the ground water to occur and that the characteristics of the site (e.g., depth to ground water and infiltration) are representative of future site conditions."

To ensure that the soil concentration established by the empirical method above will not cause an exceedance of the ground-water cleanup level, the soil concentrations must not result in an accumulation of nonaqueous phase liquid on or in the ground water. This has been determined empirically at this site and the cleanup levels that have been established assure that nonaqueous phase liquid will not accumulate in either the soil or the ground water, according to MTCA requirements.

Enclosure A describes the site and circumstances of the fuel release in more detail. However, it is estimated that there were two releases as a result of filling the underground storage tank (UST) that was used for backup purposes for the school. A release occurred after the UST was first installed and filled in 1980, and again in the spring of 1997 after it was refilled and the release was discovered. The same amount of diesel fuel would have been released in both events, approximately 600 gallons. The release in 1980 would have provided sufficient time to evaluate the effects of future migration of soil into the ground water and movement within the ground water. Boreholes constructed through the spill area in July 1997 indicated that the fresh spill had leached to approximately 17 ft bgs, and

the older spill was encountered from approximately 19 ft bgs to the water table (encountered at a depth of 31.1 ft bgs).

b. Points of compliance.

The point of compliance for ground water is the standard point of compliance and is established throughout the site. The point of compliance for the soils is the standard points of compliance. For soil cleanup based on protection of ground water, the point of compliance is established throughout the site. For soil cleanup levels based on protection from soil vapors, the point of compliance is established in the soils throughout the site from the ground surface to the uppermost ground-water saturated zone (water table). For soil cleanup levels based on human health exposure via direct contact, the point of compliance is established in soils throughout the site from the ground surface to 15 ft bgs. For soil cleanup based on ecological risk the cleanup levels are applied from the ground surface to 15 ft bgs.

3. Selection of cleanup action.

Ecology has determined the cleanup action you selected for the Site meets the substantive requirements of MTCA for the following contamination at the site:

- DRO in soil and ground water.

On June 25, 1997, the UST was removed and 150 cubic yards of clean overburden and approximately 40 cubic yards of impacted soil were excavated and stockpiled on site. This soil was later treated on site.

Hydrogen peroxide (H_2O_2) was injected into monitoring well MW-6 in May 2003, September 2003, and March 2004 to oxidize residual DRO and reduce contaminant mass. Injection flow rates were adjusted to mound up to 10 ft of head within the well casing and maximize treatment of shallow soil in the area surrounding the monitoring well.

Monitored natural attenuation has been conducted on the ground water throughout the last 10 years. The last four quarters had indicated concentrations throughout the water table below detection levels.

4. Performance of cleanup action.

Ecology has determined the cleanup you performed meets the following cleanup standards:

- DRO in soil and ground water.

The last four quarters of ground-water monitoring indicates that ground water throughout the site is below regulatory cleanup levels meeting WAC 173-340-720 requirements. The maximum soil concentration obtained during construction of monitoring well MW-7, which replaced monitoring well MW-6, was obtained below the water table and was 4,800 mg/kg. This concentration was below the Method B cleanup level established for this site. All cleanup levels are considered protective of human health and the environment.

Listing of the Site

Based on this opinion, Ecology will initiate the process of removing the Site from our lists of hazardous waste sites, including:

- Hazardous Sites List.
- Confirmed and Suspected Contaminated Sites List.

That process includes public notice and opportunity to comment. Based on the comments received, Ecology will either remove the Site from the applicable lists or withdraw this opinion.

Limitations of the Opinion

1. Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not:**

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. **Opinion does not constitute a determination of substantial equivalence.**

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. **State is immune from liability.**

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

Termination of Agreement

Thank you for cleaning up the Site under the Voluntary Cleanup Program (VCP). This opinion terminates the VCP Agreement governing this project (SW0926).

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion or the termination of the Agreement, please contact me at (360) 407-6267.

Sincerely,

Charles S. Cline
SWRO Toxics Cleanup Program

CSC/ksc:Maple Lane School Centralia NFA

Enclosures (1): A – Description and Diagram of the Site

cc: William B. Abercrombie, Mike Ehlebracht, HartCrowser, Inc.
Gerald Tousley, Thurston County Health Dept.
Ms. Carol Johnston, Ecology
Ms. Dolores Mitchell, Ecology w/o enclosures
Mr. Scott Rose, Ecology w/o enclosures

ENCLOSURE A

The Maple Lane School is located at 20311 Old Highway 9 SW, Centralia/Rochester, Thurston County, State of Washington. Figure 1 shows the location of the property and the location of the site within the property. The Maple Lane School serves as a youth detention facility and is located in Grand Mound Prairie and is surrounded by mostly residential farmland. To the south, the site is immediately adjacent to a wetland/slough (a.k.a. Prairie Creek), which connects to the Chehalis River approximately ½ mile west and northwest. The slough is approximately 15 feet lower in elevation than the school area. The depth of the surface water in the slough fluctuates considerably according to the seasons.

In 1980, a 6,000-gallon underground storage tank (UST) was installed solely for use as a backup source of fuel for the school boilers. The UST had been filled with diesel-range organic (DRO) fuel in 1980, but was never used. In the spring of 1997, it was decided to burn the old diesel in the boiler and then refill with new diesel. The tank was refilled in early May 1997. After several days the boiler operators detected a loss of fuel. The supplier was requested to remove fuel to prevent further loss. A tightness test of the tank was conducted that substantiated the release.

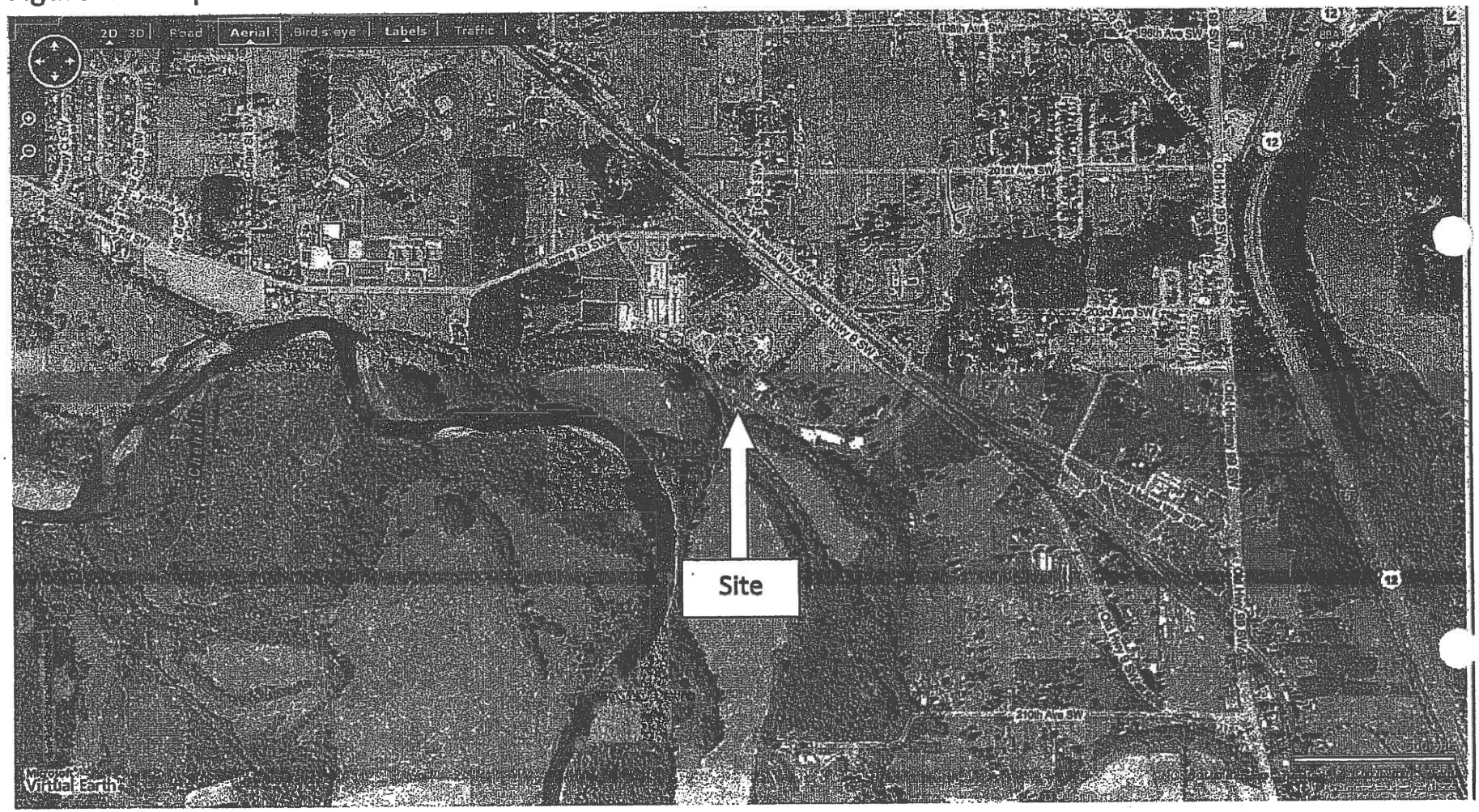
On June 25, 1997, the UST was removed and a hole was discovered approximately 14 inches from the top of the tank. Apparently, during installation, a blade of a dozer or tooth of a backhoe bucket penetrated the tank. Fuel was released to within 3 to 4 inches below the gash. It is estimated that 600 gallons had been released in 1980 upon initial filling, and again in 1997 when it was discovered. The UST was removed and soils around the tank were excavated to remove as much contamination as could be done at that time. Soil sloughing prevented complete removal of the contamination. Subsequent to the UST removal, boreholes were drilled to determine extent of contamination. Field observations determined a soil profile that consisted of medium- to fine-grained sand and gravel with silt and clay. Ground water was encountered in the initial borings at 31.1 feet below ground surface (ft bgs). It was also determined that the newer release had penetrated to approximately 17 ft bgs. The older weathered release was encountered just below the new release at approximately 19 ft bgs and continued to the water table. Concentrations at 19 ft bgs and 28.8 to 30.3 ft bgs were 16,000 and 5,100 milligram per kilogram (mg/kg), respectively.

Boreholes and wells constructed between February 1998 and November 1999 determined the extent of contamination within the soil. In addition, the boreholes, six monitoring wells (eventually, seven monitoring wells), and samples collected from surface water and well points constructed adjacent to the slough down-gradient of the site defined the extent of contamination in the ground water. Figure 2 shows the locations of the various monitoring wells and points.

Figure 3 is an aerial photograph that shows the locations of some of the wells that define the site. Apparently, diesel contamination that leached to ground water did not move past the fenced area of the property and did not enter the surface water area of the slough. Concentrations that exceeded Model Toxics Control Act (MTCA) Method A ground-water cleanup levels were present only in the source area, represented by monitoring wells MW-6 and MW-7 after 1999. Table 2 summarizes the ground-water sampling results.

Because of the fine-grained nature of the soil at this location, monitoring well MW-6 could not be pumped clean of elevated suspended solid DRO concentrations. This monitoring well was redeveloped in December 2001 and was later investigated in December 2002 using a down-hole borehole camera. No cracks or physical abnormalities were observed. Due to the persistent problems with sediment accumulation in MW-6, possibly due to well construction issues, monitoring well MW-7 was installed approximately 5 ft distant to replace MW-6 in April 2005. The installation was subsequent to the H_2O_2 soil treatment and soil excavation. A soil sample collected from this boring at a depth of approximately 32.5 ft bgs (below the ground-water table) indicated a DRO concentration of 4,800 mg/kg. A sample collected at a depth of 22.5 ft bgs indicated a concentration of 1,500 mg/kg, below the MTCA Method A soil cleanup level. An examination of the chromatograms of both samples indicates weathered DRO, indicative of the earlier fuel release. Based on the soil and ground-water empirical data collected from this site, a Method B cleanup level of 10,000 mg/kg was established for the soil. At least four quarters of ground-water monitoring from the various wells and monitoring points indicates ground-water concentrations are all below Method A cleanup levels.

Figure 1 – Maple Lane School



EHS–International, Inc.

THURSTON COUNTY SITE
20311 HIGHWAY 9 SW, GRAND MOUND, WASHINGTON
PHASE II ENVIRONMENTAL SITE ASSESSMENT
FINAL REPORT

Site Location:
20311 Hwy. 9 SW
Grand Mound, Washington 98531

Prepared for:
Mr. Jim Petrich
Integrus Architecture
117 South Main Street, Suite 100
Seattle, Washington 98104

Prepared by:
EHS – International, Inc.
13228 – 20th Street NE, Suite 100
Bellevue, Washington 98005

July 26, 2011

THURSTON COUNTY SITE
20311 HIGHWAY 9 SW, GRAND MOUND, WASHINGTON
PHASE II ENVIRONMENTAL SITE ASSESSMENT
DRAFT REPORT

Prepared for

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July 26, 2011

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SUMMARY OF FINDINGS

On behalf of Integrus Architecture, EHS – International, Inc. (EHSI) completed a Phase II Environmental Site Assessment (ESA) of the Thurston County Site in Grand Mound, Washington. Mr. Jim Petrich of Integrus Architecture gave EHSI authorization to proceed with the project on May 18, 2011. The fieldwork for the Phase II ESA took place on July 1 and July 13, 2011.

The Thurston County Site, hereinafter referred to as the Site, is a 209-acre Thurston County parcel located at 20311 Highway 9 SW, Grand Mound, Washington. The Site is improved with a complex of school buildings and support structures.

EHSI completed a Phase I ESA on behalf of Integrus Architecture on July 21, 2011 (EHSI, 2011). That report identified a former fleet fueling system as a Recognized Environmental Condition (REC) for the Site. According Site personnel, underground storage tanks (USTs) and a motor fuel dispensing system were formerly located adjacent to the south of the commissary building on the southwest quadrant of the Site. The USTs and dispensers were reportedly removed in the 1980s along with an unknown quantity of contaminated soil. No reports or other documents detailing the UST and soil cleanup were provided.

The purpose of this study was to assess current soil quality at the Site to identify potential environmental liabilities for a property acquisition by the Washington State Department of Corrections. Three soil borings were drilled in the course of this study. EHSI placed one soil boring proximal to the south side of the current fleet fueling above-ground storage tank (AST) and dispensers to assess for impacts from spillage, overflows, etc. EHSI also placed two soil borings within the asphalt-patched former fleet fueling UST-hold and co-located dispenser on the southern portion of the Site to evaluate environmental soil conditions at that location.

EHSI submitted soil samples from the Site soil borings to Friedman & Bruya, Inc. (FBI) of Seattle, Washington for analyses. FBI analyzed the soil samples for gasoline-range total petroleum hydrocarbons (TPH) using Washington State Test Method NWTPH Gasoline extended (Gx), for benezene, toluene, ethylbenzene, and xylene (BTEX) using US Environmental Protection Agency (EPA) Method 8021B, and for diesel to oil-range TPH by Washington State Test Method NWTPH-Dx.

The depth of the borings ranged from 10 to 15 feet below-ground surface (BGS). The subsurface materials encountered beneath the subject Site generally consisted of sandy gravel and cobbles (GW) as per the Unified Soil Classification System (USCS).

EHSI field personnel did not observe elevated photoionization detector (PID) readings, odors, staining, or other indications of potential contamination in the soil samples. No gasoline-range TPH or BTEX was detected in the samples analyzed. The analytical results for soil sample B3-10 (10 feet BGS) contained oil and diesel-range TPH at concentrations below the applicable State of Washington Model Toxics Control Act (MTCA) Method A soil Cleanup Levels for Industrial Land Uses (173-340 WAC).

Based on the results of the Phase II ESA, no adverse environmental impacts are associated with the existing and former fleet fueling systems.

No additional action is warranted at this time.

1 INTRODUCTION

EHSI completed a Phase II ESA of the Site on behalf of the client, Integrus Architecture. Mr. Jim Petrich gave EHSI authorization to proceed with the project on May 18, 2011. The fieldwork for the Phase II ESA took place on July 1 and July 13, 2011.

1.1 PROJECT PURPOSE

The purpose of the Phase II ESA was to assess the Site for the presence of petroleum hydrocarbon contamination in soil at the current and former on-Site fleet fueling systems.

1.2 REPORT ORGANIZATION

This report begins with the following sections: a summary of findings, statement of project purpose; a general property overview with discussion of project area geology; site conditions; and field observations. Subsequent sections present the elements of the field sampling methodology, laboratory analyses, and analytical results, as well as regulatory review, project conclusions, and recommendations. Three figures, three tables, and supporting appendices follow the main text. Figure 1 is the Site Location Map, Figure 2 is the Site Overview Map, and Figure 3 is the Site Sample Plot Plan. Table 1 presents the sample source information. Table 2 presents the gasoline TPH and BTEX analytical results for the soil samples. Table 3 presents the analytical diesel- to oil-range TPH results for the soil samples. Appendix A provides the soil boring logs and Appendix B contains a copy of the laboratory analytical report.

2 PROPERTY OVERVIEW

The subject property includes a 209 acre irregularly-shaped Thurston County parcel. The subject property is currently occupied by a complex of buildings comprising the Maple Lane School.

2.1 BACKGROUND

In July of 2011 EHSI completed a Phase I ESA of the subject property. The Phase I ESA identified risks associated with the former on-Site fleet fueling system on the southern portion of the Site as a REC.

3 SCOPE OF FIELD SERVICES

EHSI attempted the drilling of six soil borings within the Site on July 1, 2011. However, drill refusal with the direct-push probe was encountered before the project objective depths were met. To reach the project objective depths, EHSI returned to the Site on July 13, 2011 and drilled three soil borings with a larger mobile B-81 hollow-stem auger (HSA) drill rig. Northwest Geotech of Puyallup, Washington provided drilling services. Soil samples collected from the three soil borings drilled at the Site were submitted to FBI Laboratory for analysis. FBI is a Washington Department of Ecology accredited analytical laboratory. The following sections provide a description of the fieldwork for the Phase II ESA.

3.1 SOIL BORING LOCATIONS

The focus of the Phase II ESA was the former fleet fuel dispenser island and former UST excavation area and the existing fleet fueling AST and associated dispensers.

EHSI placed three soil borings in the following Site property locations described below and depicted on Figure 2:

- Soil boring (B1) was drilled proximal to the existing fleet fueling AST and dispensers on the southwest quadrant of the Site, and;
- Two soil borings (B-2 and B-3) were positioned to sample soils at the former fleet fuel dispensing islands and co-located USTs.

3.2 SUBSURFACE SAMPLING PROCEDURE AND BORING LOGGING

An EHSI Washington state-licensed geologist directed all drilling and soil logging activities on-site.

All three soil borings were drilled using a mobile B-81 HSA drill rig with split-spoon sampler. Northwest Geotech drilled soil borings B-1 through B-3 to maximum depths ranging from 10 to 15 feet BGS. All soil borings were drilled until either drill refusal or project objective depths were met.

EHSI field personnel collected discrete soil samples for soil classification at either 2.5 or at 5-foot intervals. Northwest Geotech provided a HSA drill with steel split-spoon sampler to collect the samples. The coarse-grained nature of the native soils precluded use of the EPA Method 5035A sampling protocol. The sampling procedure consisted of drilling the auger flights to within one foot of the desired depth and then driving the split-spoon sampler with a 140-lb. drop hammer ahead of the auger to the sample depth. There was no sample recovery at soil boring B2 from 15 feet BGS. Samples from soil borings B-2 and B-3 were selected for laboratory analysis were obtained from depths representative of the typical invert elevation of a UST installation where contamination would most likely be present. Soil samples from soil boring B-1 were obtained from approximately 7.5 and 15 feet BGS and at the closest practical approach to the fuel dispensers. Drill refusal was encountered at a depth of 10 feet BGS at soil boring B-3 due to large cobbles.

Soil encountered during drilling was visually inspected and classified in accordance with the USCS. EHSI field personnel used a PID along with visual and olfactory methods to screen all soil samples collected during drilling operations. EHSI field personnel recorded pertinent geologic and hydrogeologic observations on soil boring logs provided in Appendix A. Table 1 provides a summary of the sources for the samples submitted for chemical analysis.

3.3 SAMPLING DOCUMENTATION

EHSI documented all field activities associated with soil sampling on boring logs and in a field notebook. Documentation outlined a comprehensive discussion of field observations including field parameter measurements, and any problems encountered. All soil and groundwater sample containers were labeled with the following information:

- Project identification number;
- Sample date and time;
- Sample identification number; and
- Sampler's name.

Each soil sample collected was given a unique identification number as described below:

Soil boring\ Sample Depth: For example, sample B1-15 is a sample collected at the Site from Soil boring #1 (B1) at the sample interval depth of 14.5 to 15.0 feet BGS.

The sample chain-of-custody forms included an EHSI project identification number, the sampler's name, sample identification codes, number of containers, date, and time the sample was collected, and requested sample analyses. EHSI included the completed chain-of-custody form with the samples sent to the analytical laboratory.

3.4 DECONTAMINATION PROCEDURES

All non-disposable sampling equipment, including the 1-foot long split-spoon soil sampler, was decontaminated prior to and after each sampling operation. The specific steps used for decontamination of the sampling equipment are:

- Rinse and pre-clean equipment in potable water;
- Wash and scrub equipment with non-phosphate based detergent and potable water;
- Rinse with potable water;
- Rinse in deionized water; and
- Air-dry between sampling.

3.5 SAMPLE HANDLING AND SHIPPING

EHSI field personnel checked all sample jars for completeness and cap tightness, placed the sample containers in sealed Ziploc bags, and then placed the samples upright in a cooler chilled with ice. EHSI field personnel transported the samples to the FBI analytical laboratory. All samples collected were delivered under chain-of-custody protocol to the analytical laboratory for chemical analysis.

3.6 LABORATORY PROTOCOL

EHSI submitted four soil samples collected from the Site subsurface to FBI for analyses. FBI analyzed the soil samples for gasoline-range TPH using Washington State Test Method NWTPH Gx and for diesel to oil-range TPH by Washington State Test Method NWTPH-Dx. In addition, the lab tested the soil samples for BTEX using EPA Method 8021B.

4 INVESTIGATION RESULTS

4.1 GEOLOGY

The dominant geological feature of the landscape in this portion of the Thurston County is alluvium. The alluvium is made up of predominantly layers of sand, gravel, cobbles and boulders. The alluvium was deposited by high-energy streams flowing in outwash channels from the wasting Pleistocene glaciers farther to the north (Jones 1998).

4.2 SUBSURFACE CONDITIONS

The subsurface materials at the Site are generally made up of the following lithology. The upper three-feet is made up of dark brown silt with organic matter interpreted as topsoil. From 5.0 to 10 feet BGS the native material is dry, brown, coarse sand and rounded large gravel (GW; USCS). From 10.0 to 15.0 BGS, dry, dark gray, large gravel, rock fragments, and cobbles were present. At soil boring B1 a dry, light brown, poorly-graded, medium-grained sand (SP) was encountered between 10.0 feet BGs and 12.5 feet BGS. Details on the

shallow subsurface geology are documented in the soil boring logs that are provided in Appendix A.

4.3 GROUNDWATER

No groundwater was encountered to the maximum exploration depth of 15.0 feet BGS. Based on previous Site work, the local water table is approximately 30 feet BGS.

4.4 FIELD OBSERVATIONS

EHSI field personnel did not observe elevated PID readings, soil staining, odors, or other evidence of contamination in any of the samples screened.

5 ANALYTICAL RESULTS

Analytical results indicate that no gasoline-range TPH or BTEX was present in any of the samples analyzed (Table 2). No diesel to oil-range TPH was detected in the samples from B1 and B2. The sample from soil boring B3 at 10 feet BGS returned results of 700 mg/kg oil-range TPH and 420 mg/kg diesel-range TPH (Table 3). Appendix B contains a copy of the laboratory analytical report.

6 REGULATORY FRAMEWORK

All soil analytical results were compared to the MTCA Method A Soil Cleanup Levels for Industrial Properties. State regulators and environmental professionals use MTCA Cleanup Levels as a baseline to evaluate concentrations of contamination in soil. The MTCA Cleanup Levels are the concentration standards where, if exceeded, the State of Washington regulators may judge that a cleanup action is warranted.

The soil sample obtained from 10 feet BGS at soil boring B3 contained concentrations of oil-to diesel-range TPH below the MTCA Method A Soil Cleanup Levels for Industrial Properties.

7 PHASE II ESA CONCLUSIONS

The single detection of oil- to diesel-range TPH at soil boring B3 from a depth of 10 feet BGS is below the MTCA Method A Soil Cleanup Level for Industrial Properties. Based on the results of the Phase II ESA, no adverse environmental impacts are associated with the existing and former fleet fueling systems.

8 PHASE II ESA RECOMMENDATIONS

No additional action is warranted for the Site at this time.

9 REFERENCES

Washington State Model Toxics Control Act Cleanup Regulation—Chapter 173-340 WAC. Washington State Department of Ecology, Toxics Cleanup Program, Publication Number 94-06. Updated October 12, 2007.

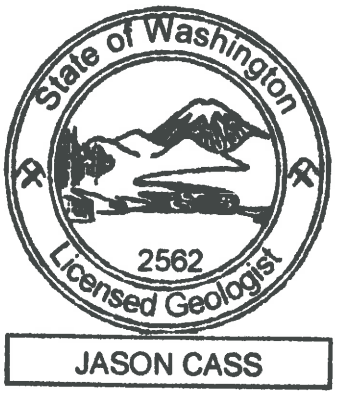
Jones, M. A. 1998. *Surficial Hydrogeologic Units of the Puget Sound Aquifer System, Washington*; United States Geological Survey Professional Paper 1424-C.

USGS. 1992. Centralia, Washington, 7½-Minute Topographic Quadrangle Map, United States Geologic Survey, Denver, Colorado.

EHSI, July 21, 2011, Phase I Environmental Site Assessment, Thurston County Site, 20311 Highway 9 SW, Grand Mound, Washington.

SIGNATURE

This Phase II ESA Final Report was prepared by the undersigned.



Jason Cass, L.G.
Washington Licensed Geologist; License #2562.

7/26/11
Date

Miguel A. Ortega, L.G.
Washington Licensed Geologist; License #534.

7/26/11
Date

10 PROJECT LIMITATIONS

The conclusions presented in this report are professional opinions based upon visual observations and physical testing. This report is intended exclusively for the purpose outlined herein for the site location and project indicated. This report is for the sole use of our client, Integrus Architecture and Department of Corrections. Opinions and conclusions presented herein apply to site conditions existing at the time of execution of a Phase II ESA and do not necessarily apply to future changes or other prior conditions at the site of which EHSI is not aware and has not had the opportunity to evaluate. The scope of services performed in the execution of this Phase II ESA may not be appropriate to satisfy the needs of other users, and any use or re-use of the document or the findings, conclusions, or recommendations presented is at the sole risk of said user.

EHSI's objective is to perform our work with care, exercising the customary thoroughness and competence of environmental consulting professionals in the relevant disciplines. Furthermore, we carried out our services in accordance with the standard for professional services by a consulting firm at the time those services were rendered. It is important to recognize that even the most comprehensive scope of services may fail to detect environmental liability on a particular site. Therefore, EHSI cannot act as insurers and cannot "certify or underwrite" that a site is totally free of environmental liability. In addition, no expressed or implied representation or warranty is included or intended in our report except that our work was performed within the limits prescribed by our client, and with the customary thoroughness and competence of our profession.

FIGURES

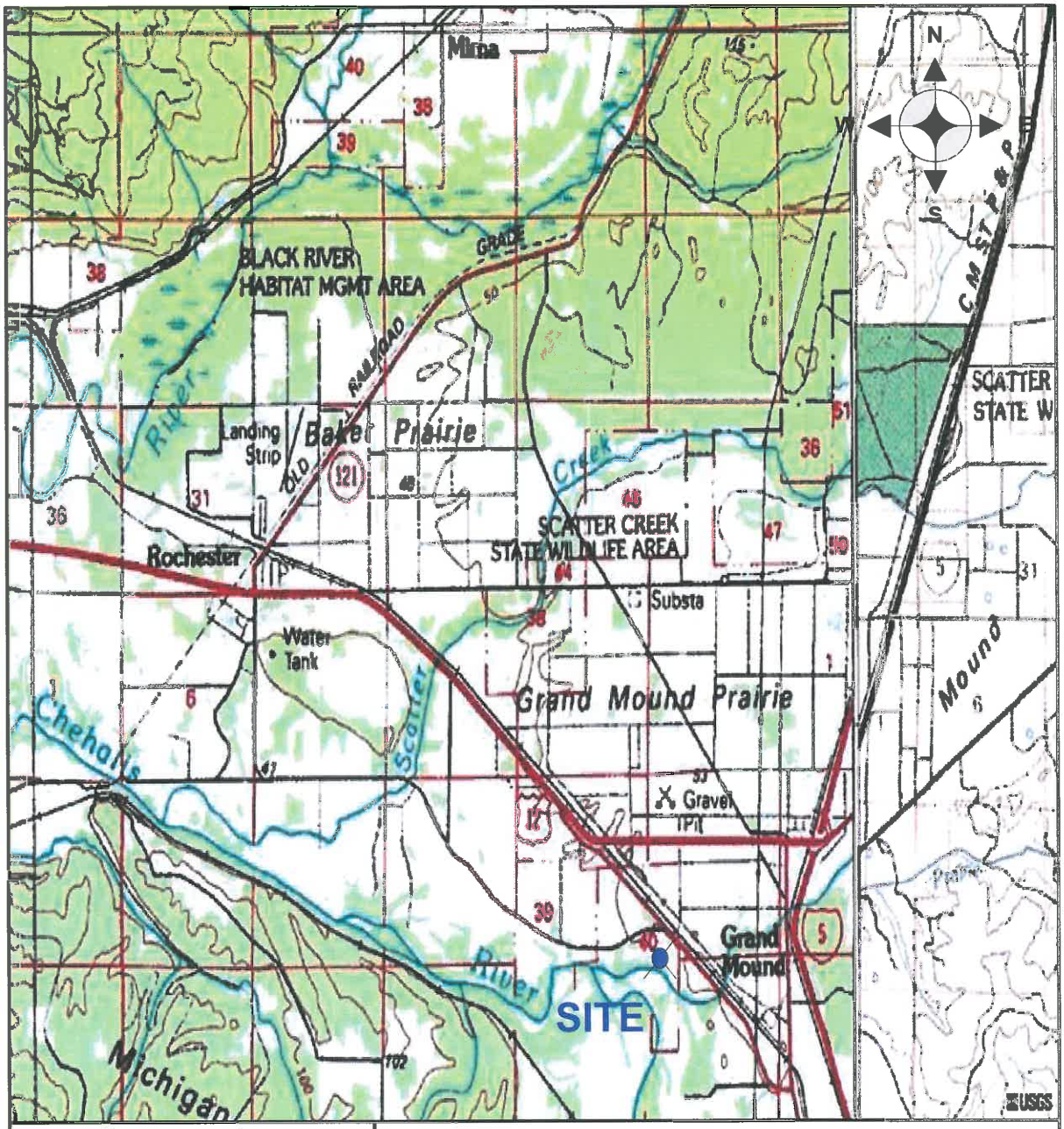
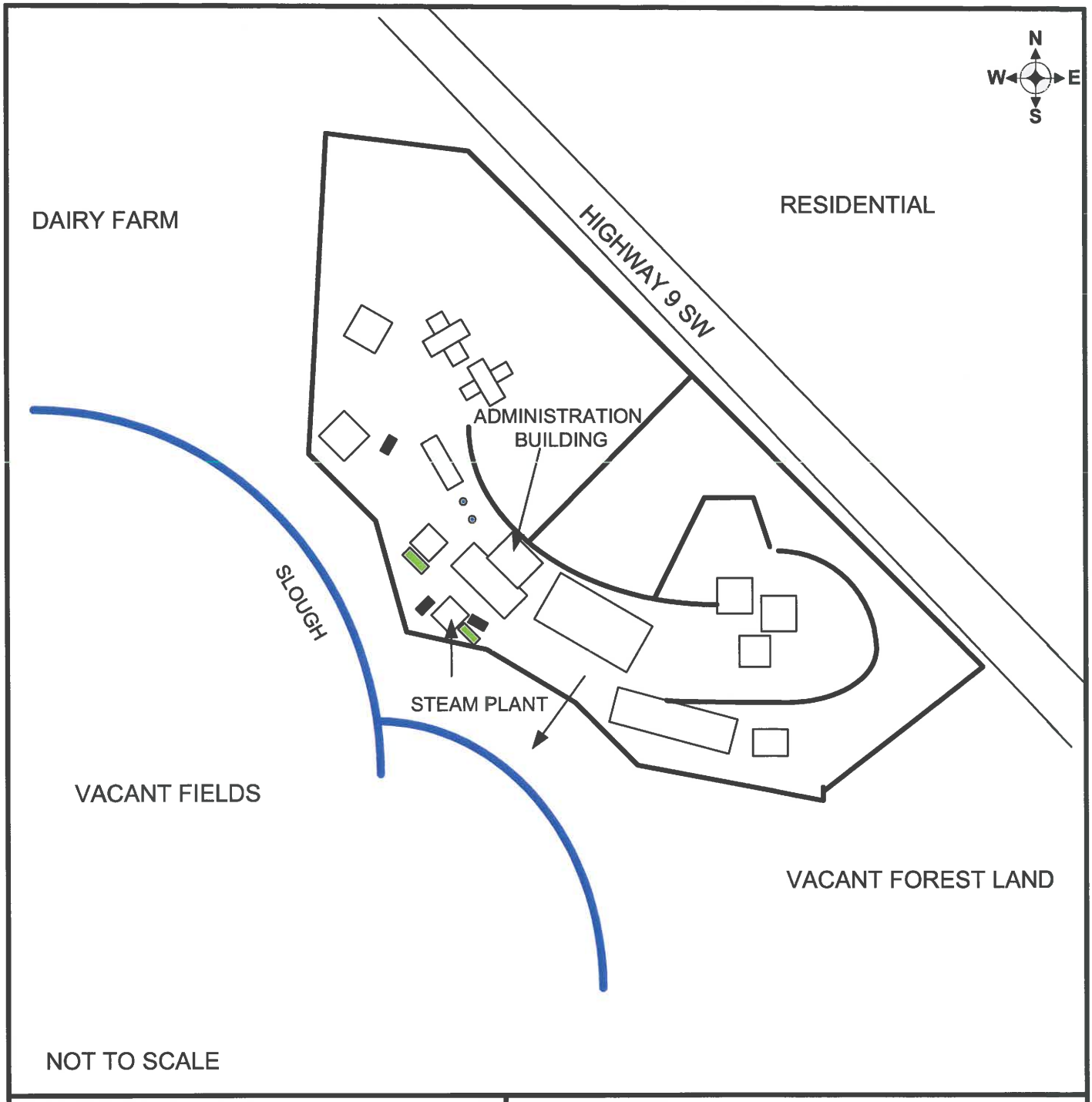


FIGURE 1
THURSTON COUNTY SITE
PHASE II ENVIRONMENTAL SITE ASSESSMENT
20311 HWY. 9 SW
GRAND MOUND, WASHINGTON 98531

SITE LOCATION MAP

Reference: US Geological Survey
Essex, Washington
7.5 Minute Quadrangle
Photo revised 1992

EHS International, Inc.	**July 2011**



EXPLANATION

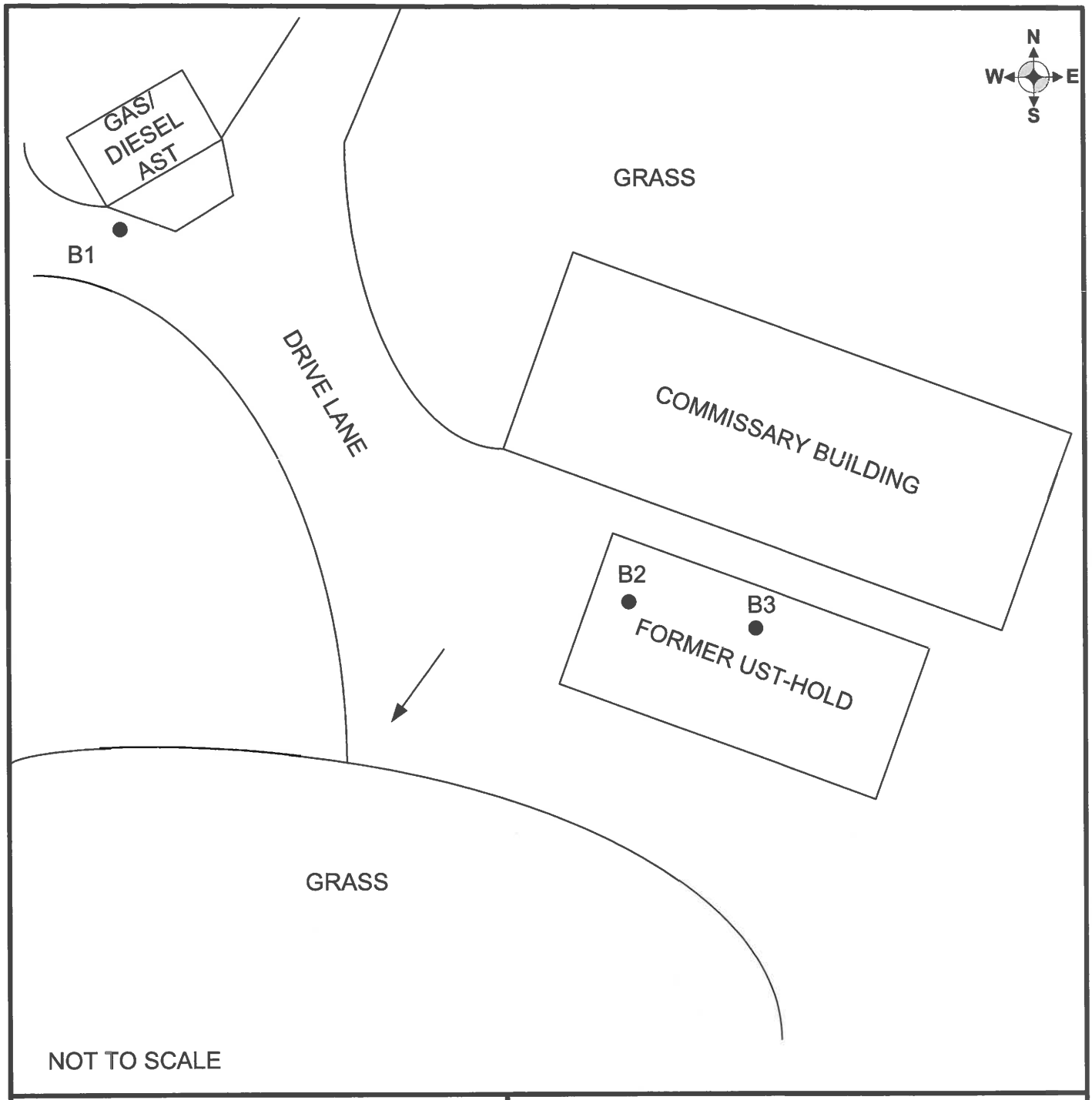
- APPROXIMATE LIMITS OF SUBJECT PROPERTY
- WATER SUPPLY WELL
- FORMER UST LOCATION
- EXISTING AST LOCATION
- INFERRED GW FLOW DIRECTION

FIGURE 2

THURSTON COUNTY SITE
PHASE II ENVIRONMENTAL SITE ASSESSMENT
20311 HIGHWAY 9 SW
GRAND MOUND, WASHINGTON 98531

SITE OVERVIEW MAP

EHS International, Inc.	July 2011



EXPLANATION

● SOIL BORING LOCATION

INFERRED GW FLOW DIRECTION

FIGURE 3

THURSTON COUNTY SITE
PHASE II ENVIRONMENTAL SITE ASSESSMENT
20311 HIGHWAY 9 SW
GRAND MOUND, WASHINGTON 98531

SITE SAMPLE PLOT PLAN

EHS International, Inc.	July 2011

TABLES

TABLE 1: SAMPLE SOURCE INFORMATION		
SOIL SAMPLE ID	**SOURCE LOCATION**	**SAMPLE DEPTH (FEET BGS[1])**
B1-7.5	Soil boring B1, immediately south of fleet fuel AST and dispenser at 7.5 feet BGS	7.0 – 7.5
B1-15	Soil boring B1, immediately south of fleet fuel AST and dispenser at 15 feet BGS	14.5 – 15.0
B2-10	Soil boring B2, within the western portion of the former fleet fuel UST-hold at 10 feet BGS.	9.5 – 10.0
B3-10	Soil boring B3, within the eastern portion of the former fleet fuel UST-hold at 10 feet BGS.	9.5 – 10.0

EXPLANATION
[1]BGS-below ground surface

Table 2: Soil NWTPH/Gx-BTEX Analytical Results					
Soil Sample ID and Sample Depth	**NWTPH-Gx[1] (mg/kg)[3]**	**Benzene[2] (mg/kg)**	**Toluene[2] (mg/kg)**	**Ethylbenzene[2] (mg/kg)**	**Xylenes[2] (mg/kg)**
MTCA METHOD A CLEANUP LEVEL[4]	30/100	0.03	7	6	9
B1-7.5	ND	ND	ND	ND	ND
B1-15	ND	ND	ND	ND	ND
B2-10	ND	ND	ND	ND	ND
B3-10	ND	ND	ND	ND	ND

EXPLANATION

[1]NWTPH-Gx, Washington State Department of Ecology Test Method for quantifying the presence of gasoline-range total petroleum hydrocarbons (TPH);

[2]Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX), by EPA Method 8021B;

[3]Analytical values reported in milligrams per kilograms (mg/kg);

[4]Washington Model Toxics Control Act (MTCA) Method A Soil Cleanup Levels For Industrial Properties (WAC 173-340-745);

[5]NA – Not Analyzed; and

[6]ND - Not Detected, below test method detection limit of 2.0 mg/kg for gasoline-range TPH, benzene (0.02 mg/kg), toluene (0.02 mg/kg), ethylbenzene (0.02 mg/kg), and total xylenes (0.06 mg/kg).

Table 3: Soil NWTPH/Dx[1] Analytical Results		
Soil Sample ID	**Diesel-range TPH (mg/kg)**	**Oil-range TPH (mg/kg)[4]**
MTCA METHOD A CLEANUP LEVEL[2]	2000	2000
B1-7.5	ND[3]	ND
B1-15.0	ND	ND
B2-10	ND	ND
B3-10	420	700

EXPLANATION

[1]NWTPH-Dx, Washington State Department of Ecology Test Method for quantitative analysis for the presence of diesel- to oil-range total petroleum hydrocarbons (TPH);

[2]Washington Model Toxics Control Act (MTCA) Method A Soil Cleanup Levels For Industrial Properties (WAC 173-340-745);

[3]ND - Not Detected, below test method detection limit of 50 mg/kg for diesel-range TPH and 250 mg/kg for oil-range TPH.

APPENDIX A: SOIL BORING LOGS

EHS–International, Inc.

SOIL BORING RECORD

Boring # B-1
Total depth 15 feet
Sheet 1 of 1

Project name Maple Lane School
Project number 10200-03
Client Integrus Architecture
EHSI rep. J. Cass

Drilling Contractor GeoTech Northwest, Inc.
Location Southwest quadrant of site
Proximal to fleet fueling AST and dispensers
Start date 7/13/11
Compl. date 7/13/11

Drilling method Hollow-stem Auger
Sampling method Split-spoon sampler
Ground elevation N/A
Air monitoring (Y/N) No
Instrument(s) PID

Instrument reading (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
						Asphalt surface
0.0 PPM	Split-spoon sampler	25		1 2	GM	Dark brown, soft, silty gravel, dry, no odors
				3 4		
0.0 PPM	Split-spoon sampler	25 40		5 6 7 8	GP	Few basalt fragments, dry, no sample Dark gray large gravel in coarse sand matrix, dry, no odor
0.0 PPM	Split spoon sampler			9 10 11	SP	Light brown medium-grained sand, dry, no odor
0.0 PPM				12	GP	Dark brown coarse sand and medium gravel, moist, no odor
0.0 PPM	Split Spoon sampler			13 14 15	GP	Dark brown coarse sand and medium gravel, moist, no odor
				16 17 18 19 20		Probe boring terminated at15 feet bgs. The borehole was backfilled from bottom of boring to the surface with bentonite chip seal. Groundwater was not encountered during drilling.

EHS–International, Inc.

SOIL BORING RECORD

Boring # B-2
Total depth 15 feet
Sheet 1 of 1

Project name Maple Lane School
Project number 10200-03
Client Integrus Architecture
EHSI rep. J. Cass

Drilling Contractor GeoTech Northwest, Inc.
Location Southwest quadrant of site
At former fleet fueling UST.
Start date 7/13/11
Compl. date 7/13/11

Drilling method Hollow-stem Auger
Sampling method Split-spoon sampler
Ground elevation N/A
Air monitoring (Y/N) No
Instrument(s) PID

Instrument reading (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
				1		Asphalt surface
				2		
				3		
				4		
0.0 PPM	Split spoon sampler	10		5	GP	Few basalt fragments and brown medium sand, dry, no sample
				6		
				7		
				8		
0.0 PPM	Split spoon sampler	30		9		
				10	GP	Dark gray coarse-grained sand and large gravel, dry, no odor.
				11		
				12		
	Split Spoon sampler			13		
				14		
				15		No sample recovery.
				16		Soil boring terminated at15 feet bgs. The borehole was backfilled from bottom of boring to the surface with bentonite chip seal. Groundwater was not encountered during drilling.
				17		
				18		
				19		
				20		

ehsi
EHS–International, Inc.

SOIL BORING RECORD

Boring # B-3
Total depth 15 feet
Sheet 1 of 1

Project name Maple Lane School
Project number 10200-03
Client Integrus Architecture
EHSI rep. J. Cass

Drilling Contractor GeoTech Northwest, Inc.
Location Southwest quadrant of site
At former fleet fueling UST.
Start date 7/13/11
Compl. date 7/13/11

Drilling method Hollow-stem Auger
Sampling method Split-spoon sampler
Ground elevation N/A
Air monitoring (Y/N) No
Instrument(s) PID

Instrument reading (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
				1		Asphalt surface
				2		
				3		
				4		
0.0 PPM	Split spoon sampler	25		5	GP	Brown medium-grained sand and large gravel, dry, no odor
				6		
				7		
				8		
				9		
0.0 PPM	Split spoon sampler	40		10	GP	Dark gray coarse-grained sand and large gravel, dry, no odor.
				11		Drill refusal at 10.0 feet BGS.
				12		
				13		
				14		
				15		
				16		Soil boring terminated at10 feet bgs. The borehole was backfilled from bottom of boring to the surface with bentonite chip seal. Groundwater was not encountered during drilling.
				17		
				18		
				19		
				20		

APPENDIX B: LABORATORY ANALYTICAL REPORT

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

July 19, 2011

Jason Cass, Project Manager
EHSI
13228 NE 20th St., Suite 100
Bellevue, WA 98005

Dear Mr. Cass:

Included are the results from the testing of material submitted on July 14, 2011 from the Maple Lane School 10200-02, F&BI 107161 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Shelby Nelson
EHS0719R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 14, 2011 by Friedman & Bruya, Inc. from the EHSI Maple Lane School 10200-02, F&BI 107161 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EHSI
107161-01	B1-2.5
107161-02	B1-7.5
107161-03	B1-10.0
107161-04	B1-12.5
107161-05	B1-15
107161-06	B2-10
107161-07	B3-5
107161-08	B3-10

All quality control requirements were acceptable.

Date of Report: 07/19/11
Date Received: 07/14/11
Project: Maple Lane School 10200-02, F&BI 107161
Date Extracted: 07/14/11
Date Analyzed: 07/14/11

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-132)
B1-7.5 107161-02	<0.02	<0.02	<0.02	<0.06	<2	100
B1-15 107161-05	<0.02	<0.02	<0.02	<0.06	<2	101
B2-10 107161-06	<0.02	<0.02	<0.02	<0.06	<2	100
B3-10 107161-08	<0.02	<0.02	<0.02	<0.06	<2	103
Method Blank 01-1269 MB	<0.02	<0.02	<0.02	<0.06	<2	104

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/19/11
Date Received: 07/14/11
Project: Maple Lane School 10200-02, F&BI 107161
Date Extracted: 07/15/11
Date Analyzed: 07/16/11

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
B1-7.5 107161-02	<50	<250	128
B1-15 107161-05	<50	<250	131
B2-10 107161-06	<50	<250	132
B3-10 107161-08	420 x	700	131
Method Blank 01-1272 MB	<50	<250	112

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/19/11
Date Received: 07/14/11
Project: Maple Lane School 10200-02, F&BI 107161

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 107155-05 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	93	66-121
Toluene	mg/kg (ppm)	0.5	94	72-128
Ethylbenzene	mg/kg (ppm)	0.5	96	69-132
Xylenes	mg/kg (ppm)	1.5	92	69-131
Gasoline	mg/kg (ppm)	20	100	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/19/11
Date Received: 07/14/11
Project: Maple Lane School 10200-02, F&BI 107161

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 107161-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	123	124	63-146	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	123	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

107161

SAMPLE CHAIN OF CUSTODY ME 07-14-11

CI2

Page # 1 of 1

Send Report To Saxon Cass
Company EHSI
Address 13238 NE. 20th St. Ste. 100
City, State, ZIP Bellevue, WA 98005
Phone #(425)455-2459 Fax #

SAMPLERS (signature) Saxon Cass
PROJECT NAME/NO. 102000-02 Maple Lane School
PO #
REMARKS

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS						Notes
B1-2.5	01		9:51	Soil	1												
B1-7.5	02		10:17		1	X	X	X									
B1-10.0	03		10:33		1												
B1-12.5	04		10:42		1												
B1-15	05		10:48		1	X	X	X									
B2-10	06		12:25		1	X	X	X									
B3-5	07		15:32		1												
B3-10	08		15:48		1	X	X	X									

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Jason Cass	Saxon Cass	EHSI	7/14/11	9:40
Received by:		Matt Langston	F&B Inc	7/14/11	1310
Relinquished by:					
Received by:					

Samples received at 2 °C

APPENDIX G

Cultural Resources Technical Report

DEPARTMENT OF CORRECTIONS
WESTSIDE PRISON RECEPTION CENTER
DRAFT EIS –
CULTURAL RESOURCES TECHNICAL REPORT

Report Prepared by

Jessie Piper

November 22, 2011

NWAA/SWCA Report Number 20687

CONTAINS CONFIDENTIAL INFORMATION – NOT FOR GENERAL DISTRIBUTION

Northwest Archaeological Associates / SWCA
5418 - 20th Avenue NW, Suite 200
Seattle, Washington 98107

ABSTRACT

The Washington State Department of Corrections (DOC) is evaluating potential sites in Western Washington for construction and operation of a new prison reception center to serve its statewide male offender population. Three alternative locations in Kitsap County, Mason County, and Thurston County have been selected to undergo analysis for the Environmental Impact Statement (EIS) required under SEPA. NWAA was retained to conduct a cultural resources assessment of the three sites to assess the potential for impacts from the proposed project. Analysis of the built environment is being addressed by the DOC in a separate report. Based on the background analysis, NWAA recommends that archaeological survey would be required to complete identification of cultural resources at all three site locations.

TABLE OF CONTENTS

1 INTRODUCTION/BRIEF DESCRIPTION OF PROJECT

1.1 General Project Description

The Washington State Department of Corrections (DOC) is evaluating potential sites in Western Washington for construction and operation of a new prison reception center to serve its statewide male offender population. The reception center would be the first place offenders go to be assessed after sentencing before being transferred for long-term placement. The proposed Westside Prison Reception Center needs to be fully operative by 2016 due to the projected increase in the population of male offenders in Washington State.

The proposed facility would be a 1,024-bed facility of approximately 356,000 square feet located on a roughly 50-acre site. The facility would provide reception beds, segregation beds, and program areas for intake, assessment, classification, food service, health and administrative , and support services in one continuous building. Associated construction elements include utilities, fencing, parking, access and frontage improvements, and landscaping, which may vary according to needs of each site.

1.2 Regulatory Context

The project comes under the jurisdiction of the State Environmental Protection Act (SEPA). Acting as the SEPA lead agency, the Washington State Department of Corrections (DOC) has determined that this proposal is likely to have a significant adverse environmental impact on the environment. An EIS is required under RCW 43.21C.030.

The Governor's Executive Order 05-05 "Archaeological and Cultural Resources" requires state agencies to review impacts to cultural resources from projects that are not undergoing Section 106 review for the National Historic Preservation Act (NHPA). Section 106 requires federally assisted, regulated, or permitted undertakings to identify historic properties, i.e., buildings, structures, objects, or archaeological sites included in or eligible for inclusion in the National Register of Historic Places (NRHP) and to take into account the effects of the project on these properties.

Other statutes protecting cultural resources in Washington state laws address archaeological sites and Native American burial sites. The Archaeological Sites and Resources Act [RCW 27.53] prohibits knowingly excavating or disturbing prehistoric and historic archaeological sites on public or private land. The Indian Graves and Records Act [RCW 27.44] prohibits knowingly destroying American Indian graves and provides that inadvertent disturbance through construction or other activities requires re-interment under supervision of the appropriate Indian tribe. In order to prevent the looting or depredation of sites, any maps, records, or other information identifying the location of archaeological sites, historic sites, artifacts, or the site of traditional ceremonial, or social uses and activities of Indian Tribes are exempt from disclosure [RCW 42.56.300].

This report presents the results of a cultural resources assessment of the three sites to assess the potential for impacts from the proposed project. Analysis of the built environment is being addressed by the DOC in a separate report.

1.3 Alternatives Evaluated for the Phase 1 Technical Report

Three alternate locations are being proposed for the project in Bremerton (Kitsap County), Mason County, and Thurston County respectively (Figure 1).

Bremerton Site

The proposed site, located on the south edge of the City of Bremerton, consists of approximately 100 acres located southeast of SR 3 and north of the SW Lake Flora road in Section 22 of Township 23 North, Range 1 West, Willamette Meridian (Figures 2 and 3). The building will be situated in the NE portion of the site, occupying about 17 acres (together with surface parking, access drives and service/bus yard). Open space/landscaping would comprise an additional 9 acres. The site has been logged and has mature trees and vegetation. Lake Flora is south of the site. Other streams and wetlands are found in the surrounding area. The Bremerton National Airport is located to the north of the site. The site and remaining surrounding area is currently used for forestry, except for an auction and self storage business on the west side along SR 3 and a residential and commercial area across the highway. The site is located within the South Kitsap Industrial Area (SKIA), a zone adjacent to the southern tip of the City of Bremerton where industrial and other high intensity uses are being planned.

Mason County Site

The proposed site consists of an area of approximately 50 acres located south of Dayton Airport Road (SR 102) and northeast of the existing Washington State Correctional Center in Sections 11 and 31 of Township 20 North, Range 4 West, Willamette (Figures 4 and 5). The building would be situated in the central portion of the site and would occupy (together with surface parking, access drives and service/bus yard) about 17 acres. Open space/landscaping would comprise an additional 9 acres. The site was formerly logged and now has mature vegetation and trees. It is cleared and bisected by several small roads but is currently undeveloped. A 1.9-acre wetland is located within the northwestern portion of the site. The South Fork of Goldsborough Creek and associated wetlands are found to the west. Surrounding land uses are industrial and commercial, including the Mason County Landfill to the west across SR 102, and an auto junkyard to the northeast.

Thurston County Site

The overall Thurston County 209-acre site contains the approximately 55-acre area containing the former Maple Lane Juvenile Detention Facility; generally the developed area within the existing perimeter roadway, located at 20311 Old Highway 9 SW, in Grand Mound, in Section 11 and 14 of Township 15 North, Range 3 West, (Figures 6 and 7). Current plans call for construction of a new prison reception center building, and demolition of some existing buildings on the site and remodeling and upgrading of others. Approximately 25 acres would consist of buildings, surface parking, access drives and service/bus yard. Open space/landscaping would comprise an additional 10 acres. The site is on the grounds of the former Maple Lane Juvenile Facility, once the State School for Girls. Approximately 32 buildings of the former facility are clustered along the southern half of the site, with a large, open grass-covered area between the buildings and the Interstate 5 corridor. Mature trees, including several large old oaks, are located around the perimeter of the site and around some of the facilities. The Chehalis River is located approximately 1,700 feet southwest of the site. The southern boundary of the site is at an elevation about 25 feet higher elevation than the river floodplain and associated wetlands. A

dairy farm is adjacent to the site to the northwest, a golf course is located immediately to the southeast, and undeveloped land present to the south. Other uses in the surrounding area are largely residential and agricultural.

No Action Alternative

This alternative assumes that none of the site alternatives are selected and that no new construction or operation occurs in conjunction with a new reception center

2 EXISTING CONDITIONS

2.1 Environmental Context

Archaeological evidence indicates the Pacific Northwest has been occupied by humans over the last 12,000 years, since the end of Pleistocene glaciation. Following retreat of the continental ice sheet, geomorphic, geologic, and climate processes continued to shape the landscape and influence the people who resided in the region. Natural processes such as sea-level rise, changes in climate, and tectonic events have affected the potential distribution of resources used by people and created landforms suitable for human occupation. At the same time, these processes have also altered the archaeological record itself by selectively preserving or destroying sites that contain evidence of how people lived.

Geology and Geomorphology

The Puget Lowland is an elongated trough and structural depression oriented on a north-south axis bordered on the east by the Cascade Mountains and on the west by the Olympic Mountains. The topography and surficial geology of the Puget Lowland is the result of multiple continental glaciations that extended south from Canada through the Puget Lowlands during the Pleistocene epoch (1.8 million to 10,000 years ago) (Easterbrook 1993; Booth et al. 2003; Porter and Swanson 1998). The Lowland surface is characterized by rolling topography that is interrupted by large troughs carved by the ice sheet and now occupied by the marine waters of the Puget Sound, large freshwater lakes, and the drainage networks of major rivers (Galster and Laprade 1991; Liesch et al. 1963; Yount et al. 1993; Troost and Stein 1995).

As the last continental ice sheet advanced into Puget Sound, ice blocked the Strait of Juan de Fuca, forming a large freshwater lake that eventually drained to south, out through the Black Hills south of Olympia and to the Pacific Ocean through the ancestral Chehalis River. Fine grained sediments (silt and clay) from the glacier and rivers and streams flowing from the Cascade and Olympic Mountains deposited in the lake. As glaciers continued to advance, meltwater streams issuing from the glacier laid down extensive deposits of sand and gravel (advance outwash), filling the lake and burying much of the pre-glacial topography. Glacier advanced over the lake and outwash deposits, scouring out some areas and depositing glacial till over the surface in others. Deposits were highly consolidated by the weight of the overlying ice, resulting in highly compact soils. As the glacier retreated, recessional deposits of sand and gravel outwash, along with ablation deposits of silt, sand, and gravel were laid down in some areas. Normal erosional and depositional processes then further modified the landscape.

Global sea-level was considerably lowered during the last glacial maximum because of the tremendous amounts of water locked up in the ice sheets. When the ice sheets began to melt,

global sea-level began to rise. The Puget lobe of the Cordilleran ice sheet retreated past the Admiralty Inlet, near Whidbey Island, by about 13,500 BP (Dethier et al. 1995; Mosher and Hewitt 2004). Prior to 13,500 BP, large glacial lakes that formed south of the ice front drained southward through a series of spillways that emptied into the ancestral Chehalis River (Thorson 1989; Waitt et al.1983). Marine water flooded the Puget Lowland after the dam at the Admiralty Inlet was breached during ice recession, forming deep marine embayments at what are now Commencement Bay at Tacoma and Elliott Bay at Seattle

By approximately 15,700 years ago, the Puget Lobe had retreated from its southern terminus just south of Olympia to the vicinity of Seattle. During the Everson Interstade, which began about 13,000 years ago, a glacial ice thinned sufficiently to allow marine water into the Puget Lowland (Easterbrook 1976:449). The remaining ice floated, resulting in the eventual deposition of glaciomarine drift over an area of approximately 18,000 square kilometers. The Cordilleran ice sheet re-advanced a short distance into the Puget Lowland during the Sumas Stade approx 11,500 years ago, then made its final retreat by 10,000 years ago (Easterbrook 1976:450).

During this period, rivers established new courses in the glacial drift in an effort to reach their lowered base level. Isostatic rebound slowed around 9000 BP and continued global sea-level rise drowned the early Holocene shorelines (Booth et al 2004; Dragovich et al. 1994). Sea-level rose relatively rapidly between 9000 and 7000 BP, after which, the rate slowed. The Holocene sea-level rise renewed deltaic sedimentation and aggradation at the mouths of major rivers (Crandell 1965; Dragovich et al.1994). By about 5,000 years ago, sea level approached modern levels, likely inundating earlier archaeological sites along Puget Sound coastlines (Wesson and Stilson 1987).

Beginning since the Holocene about 10,000 B.P., several geological processes have substantially changed the landscape throughout the Puget Sound region. Earthquakes associated with subduction of the Juan de Fuca oceanic plate under the North American continental margin have caused subsidence and uplift throughout the Puget Lowlands. Although movement on a plate boundary does not usually cause fault ruptures at the surface, deeper earthquakes cause uplift and subsidence in the different basins and arches of the Puget Sound region (Johnson et al. 2004). Tectonic processes from both subduction earthquakes and those generated from local faults have interacted with isostatic rebound of land and global eustatic processes since retreat of glacial ice to create a complex history of relative sea level changes and shoreline movements (Atwater and Moore 1992).

The Bremerton site lies within an area of low rolling hills, the remnant of a Pleistocene glacial drift plain. The surrounding area contains several depression lakes and wetlands in uplands areas. Numerous drainage networks of streams and river valleys created by the glacial meltwater remain today, including the Union River and Mission Creek to the west and Coulter Creek to the south. Soils in the Bremerton site area are largely glacial till, a mix of gravelly sand with scattered cobbles and boulders in a clay/silt matrix. Some depressions of peat have also been mapped on the site (EA Blumen et al. 2011; Bert Schunder, GeoEngineers personal communication June 2011). Fill is probably also present in isolated areas, likely consisting of relocated silt, sand and gravel, but also possibly containing construction debris, abandoned foundations, and demolition rubble from earlier structures in the area (EA Blumen et al. 2011).

The Mason County site is situated in an area with recessional outwash sediments and gravel soil. A large number of gravel pits are located in the area, and some mining may have taken place in the site vicinity (Bert Schunder, GeoEngineers personal communication 2011).

The final phase of the Vashon glaciation made its way to a point near Centralia, south of the Thurston County site. As the glacial epoch came to an end, meltwater from receding glaciers formed temporary lakes of various sizes along the Chehalis and other rivers, dammed by Vashon outwash. Over time, these waters coalesced into larger glacial lakes that eventually forced their way through the Chehalis River gap, finding an outlet to the sea. The Thurston County site lies on a glacial outwash terrace consisting of very gravelly material above the Chehalis River (Bert Schunder, GeoEngineers personal communication 2011). Immediately to the south, the terrain slopes down to the river floodplain.

Plant and Animal Communities

Since the end of the Pleistocene, regional and local vegetation has changed in response to climatic trends. Pollen cores show the newly deglaciated terrain supported a fairly open landscape of subalpine grasses, sedges, bracken fern, lodgepole pine, and red alder moving in from refugium areas. Warmer and drier conditions were marked by the expansion of grasses, oak, and hazel, and the persistence of Douglas fir between 10,500-7,000 BP. After about 7,000 BP, cedar and hemlock became dominant and the modern climate began to establish itself with cool, moist conditions and development of closed climax forests. After about 7,000 BP., cedar and hemlock were becoming dominant and the modern climate regime began to establish itself with cool, moist conditions and closed climax forests (Tsukada et al. 1981; Whitlock 1992). By about 5,000 BP, closed forests dominated by western red cedar and western hemlock had become established throughout the region (Tsukada et al. 1981; Whitlock 1992).

The *Tsuga heterophylla* (western hemlock) zone is the characteristic lowland forest vegetation within western Washington (Franklin and Dyrness 1973). Species typical of this zone include western hemlock, western red cedar, and Douglas fir, with dense shrub and herbaceous understory generally composed of sword fern, salal, Oregon grape, ocean spray, blackberry, red huckleberry, and red elderberry (Franklin and Dyrness 1973).

Specialized habitats offer diverse plant species. In riparian areas, red alder, black cottonwood, bigleaf maple, and other riparian plants attractive to people and wildlife dominate undisturbed stream courses. Wetland areas contain willow, alder, cranberry, reeds, wapato, and skunk cabbage. Prairie areas such as those found in the vicinity of the Thurston County site have a special flora, supporting plants such as camas and fern roots that were harvested by native groups (Pojar and MacKinnon 1994). Native people sometimes burned these areas, which led to greater productivity of useful plants and enhanced browse for big game. Along with prairie habitat in this region, areas of oak woodland and pine forest were present (Franklin and Dyrness 1973).

Wildlife resources in western Washington, valuable for their meat, furs, and skins, include elk, deer, black bear, coyote, wolf, and smaller mammals like rabbit, fox, and a variety of tree and ground squirrels. Hudson's Bay records indicate that marten, fisher, and lynx pelts were taken in the Chehalis River area (Welch 1983). In riparian and wetland environments, resident and migrating waterfowl were available, as well as furbearers including otters, muskrats, and beaver.

Fish, particularly salmon that appeared in great seasonal runs, supplied the largest part of the native diet. In the vicinity of the Bremerton and Mason County sites, seasonal runs and different mixes of migrant and resident fish provided a wide set of fisheries resources. Within the varied waters of the Union River and surrounding creeks, coho salmon, fall chinook, fall and summer

chum, pink salmon, rainbow trout, resident cutthroat, and winter steelhead were all available. Other fish species available included Pacific lamprey, western brook lamprey, coast range sculpin, and reticulate sculpins. The Chehalis River also offer different seasonal runs of salmon and steelhead, and sturgeon are found in its estuaries (EA Blumen et al. 2011; Mason County Community Development and Utilities 2006; Washington Department of Fish and Wildlife 2011).

Native freshwater fishes found in lakes and streams throughout the study area include cutthroat and rainbow trout, Dolly Varden and bull trout, whitefish, burbot, suckers and other smaller fish (Washington Department of Fish and Wildlife 2005). In the vicinity of the Thurston County site, the Chehalis had stocks of chinook, coho, chum, cutthroat- and steelhead trout, and Pacific lamprey. In addition to fish, marine embayments and estuary environments such as the North Bay area and Hood Canal provided a host of resources including mussels, clams, oysters and a variety of other shellfish that could be preserved for winter use. Seals were also available on the marine shorelines (Kruckeberg 1991).

2.2 Cultural Context

Archaeological and historical evidence indicates that Native Americans moved into the Pacific Northwest as the last ice age came to an end, occupying western Washington for at least the last 12,000 years. More evidence is available for occupation after about 5,000 years ago and especially for the last 2,500 years when populations apparently increased and large, permanent villages were inhabited. The human history of the area is a response to the availability of natural resources of freshwater rivers, streams, marshes, sloughs, and prairies; from littoral settings; and from upland forests and meadows. Later Euroamerican inhabitants were drawn by timber and mineral resources, as well as homesteading opportunities, settling lands where maritime traffic could be established for transporting timber products and agricultural goods. Ethnographic and historic accounts provide information on land use in the Pacific Northwest, though at the time of contact between Native Americans and the earliest Euroamerican explorers, demographic and cultural changes were already altering the native way of life.

Prehistory

The earliest archaeological evidence of human presence in Washington State comes from Clovis fluted projectile points and stone tools dating to about 11,000 BP. These tools are believed to be associated with highly mobile Paleoindian groups adapted to hunting large fauna such as mammoth and mastodon, with some reliance on other plants and animals (Martin 1973; Meltzer 2004). Clovis materials are rare in Washington, known from nearly a dozen isolated finds (Meltzer and Dunnell 1987). Other evidence for this adaptation includes the Manis Mastodon site near [redacted] where extinct bison and mastodon remains dating from 12,000 BP and 10,000 BP were found in association with cultural remains (Gustafson and Manis 1984; Kirk and Daugherty 1978). In 1996, a fluted point was found near [redacted], on the edge of a pond being excavated in a wetland (LeTourneau 2010; Stein et al. 2004). Concave, unfluted projectile point bases were recently found beneath peat radiocarbon dated from 8,420 BP to 12,820 BP, at the [redacted] (Kopperl et al. 2010).

Artifacts from the following period are referred to as “Olcott” after the site type in [redacted] County (Kidd 1964) and referred to in adjacent areas as “Old Cordilleran” or “early Lithic” (Butler 1961; Fladmark 1982). Most sites are found on [redacted] (Mattson 1985). The distinctive Olcott stone tool assemblage consists of

large, leaf-shaped and stemmed points and cobble and flake tools, often made of heavily weathered volcanic rock like dacite or basalt (Carlson 1990). Olcott sites, dating to ca. 10,000/8,000 B.P. to 5,000 B.P., have been identified around [redacted], including one large site with over 10,000 chipped stone artifacts (Welch and Wessen 1991), and on [redacted]. Sites with Olcott assemblages, which generally lack organics and features such as hearths, are usually found on [redacted] where human occupation likely became established as landforms stabilized during the middle Holocene (Blukis Onat et. al 2000).

After 5,000 BP, the archaeological record indicates increasing populations with more complex socio-economic organization and evidence for greater reliance on marine and riverine resources (Ames and Maschner 1999). Marine resource use may extend back further in time; however, earlier shoreline sites would have been inundated by rising sea levels which reached near-modern elevations by about 5,000 BP. Middle period sites yield more stone and bone tools in addition to chipped stone tools (Matson and Coupland 1995). The developing importance of woodworking is evident in the presence of tools such as adzes, wedges, and mauls. Sites in a variety of environmental settings and common finds of the remains of sea mammals, fish, and shellfish indicate a diversification of economic pursuits in this period (Ames and Maschner 1999).

The Late period of the last 2,500 years in the Pacific Northwest is marked by sites and assemblages that indicate development of craft specialization and a significant concentration of wealth, both traits being representative of the "classic" Northwest Coast cultural complex (Ames and Maschner 1999; Matson and Coupland 1995). Of note are abundant shells, an increase in art objects and status markers, and a large variety of tools including ground slate knives and points, celts, and bone harpoons and points. The seasonal use of resources and locations continued during this period, and permanent and semi-permanent winter villages were established. Archaeological sites of the Late period provide evidence of settlement patterns and subsistence pursuits, including hunting, fishing, woodworking, and plant processing.

Ethnography and Ethnology

In historic times, the vicinities of the proposed alternative sites were occupied by Southern Coast Salish-speaking groups (Spier 1936; Suttles 1987; Suttles and Lane 1990), organized mainly along extended family and band lines and oriented to permanent winter villages located at the confluences of major rivers and streams and often associated with particular watersheds and resource use areas. Salish groups depended on salmon, game, and wild plant foods, collected over an annual cycle within the varied habitats throughout their territories.

The Bremerton site area was home to groups ancestral to the Suquamish Tribe, whose territory encompassed the western side of Puget Sound from Gig Harbor north to Appletree Cove between Hood Canal and Admiralty Inlet (Gibbs 1877:179; Ruby and Brown 1992; Swanton 1978:48). The Suquamish traditional territory was centered on Puget Sound between the eastern Kitsap peninsula and Hood Canal, and included Bainbridge Island and portions of Whidbey Island (Ruby and Brown 1992; Snyder 1968). Ethnographic sources have recorded numerous Suquamish place names, including a village, *Tusxo'tlEb,* meaning "to bite", on the [redacted]; *Tule'lkle* or "far off it flows" at [redacted]; *sotc*, a [redacted]; *Su'qwab* or "Old Man House" in [redacted] and *Tsquib*, on [redacted] (Snyder 1968; Waterman 2001).

Miller and Snyder (1983) summarized information obtained from tribal members and published ethnographic data that demonstrate Suquamish use of Lynch Cove, the Belfair area, and the Union River drainage. They also cited evidence of Suquamish use of the Mission Lake, Mission Creek, Union River and nearby mountains and use of the mouth of the Tahuya River southwest of Belfair around the early 1900s for camping and fishing (Miller and Snyder 1983:14, cited in Bard and Sharpe 2009).

The Suquamish had close relations with the S'Homamish and the Puyallup, whose permanent territory was centered in villages along the Puyallup River and the shores of Puget Sound but extended to the Kitsap Peninsula (Ruby and Brown 1992; Smith 1940). The Suquamish intermarried with the Puyallup and sometimes went south to Puyallup territory to fish and hunt (Smith 1940). To the west of the Bremerton area, Skokomish bands (Twana and S'klallam) occupied the shores of Hood Canal and the Skokomish River valley (Elmendorf 1960; Suttles 1987).

The vicinity of the Mason County site was home to Squaxin groups who occupied inlets in southwestern Puget Sound. Prior to treaties and reservations, the name "Squaxin" referred to various bands living on North Bay at the head of Case Inlet (Lane 1973: Squaxin; Swanton 1978). Post-treaty Squaxin also includes people who occupied Hammersly, Toten, Eld, Budd, and Henderson Inlets. In former times, separate names denoted each resident group (Gibbs 1877:178; Lane 1973). Descendants of early inhabitants are today's Squaxin Tribe. Descendents are also found among the Nisqually, Puyallup, and Skokomish Tribes. Waterman (1920) stated that the Squaxin were the people living at the mouth of the creek at the upper end of Case Inlet, i.e., the mouth of Coulter Creek. Winterhouse (1948) places them at Sherwood Creek, which drains into the inlet south of Allyn. The Squaxin relationship with other Puget Sound groups is unclear in the ethnographic literature. The Twana, which included the Skokomish, had close ties with the Squaxin and apparently considered them a branch of the Puyallup (Elmendorf 1960:292). Eells (Castile 1985:20; Ruby and Brown 1992) stated that they spoke a dialect of Nisqually.

Named places along the shores of Case Inlet reflect the presence of Native Americans in the vicinity of the project. At [redacted] is *Tuxsqa'ksud* (*split apart*), the name of a village that was situated [redacted] from which the tribal name Squaxin is derived (Waterman 2001:265, 268). Another village was located [redacted] (Smith 1940; Waterman 1920). Places [redacted] are *tuxetcai* (*mossy place*) on [redacted]; *TusqwElts* (*hot*) for [redacted], and *sulu'xults,* the [redacted] (Waterman 2001:268, 270). Other place names for natural phenomena including bays, springs, lakes, and other natural phenomena are recorded all along the shores of the Inlet and its bays to the south (Waterman 2001:265-273).

The proposed Thurston County site was occupied by Upper Chehalis people, part of the Southern Coast Salish language group. The Upper Chehalis were included with the Cowlitz in the Tsamosan dialect grouping, with Lower Chehalis and Quinault comprising a second dialect group (Hajda 1990; Taylor 1974). The Upper Chehalis, variously known as the *Kwaialks* (Ruby and Brown 1992:39), *Stak-ta-mish* (Spiers 1936), and *Holloweena*, from Chinook jargon meaning "others" (Hajda 1990), were an inland group occupying winter village along the Chehalis River from just below its confluence with the Satsop River to the Centralia vicinty (Hajda 1990; Taylor 1974).

Trails from Upper Chehalis villages led to important resource areas on the nearby Grande Mound and Ford's Prairies. A trail running from Upper Chehalis territory down through Cowlitz lands to the south linked them to Fort Nisqually, the Hudson's Bay trading post established in the in the South Sound in 1833. Horses were seen in the Upper Chehalis territory by contact times (Hajda 1990; Taylor 1974)

Upper Chehalis origin, told in the story of the Star Child, involves the Grand Mound, the hillock that rises 140 feet above the prairie floor on the floodplain of the Chehalis River (Miller 1999a). Said to be a piece of a Star that fell to earth, the Grand Mound is the emergence place of important Chehalis ancestors. Realizing it was too big for earth, the Star later returned to the sky, leaving the Grand Mound behind (Miller 1999b)

Talyor (1974) reports a Upper Chehalis village, *Talal,* [redacted] The exact location of *Claquato*, a Chehalis village reported by Curtis [redacted] is unknown. A history of the James family, who homesteaded the prairie near the Mound in 1852, reports a native fishing station was located [redacted] from their homestead, which was southwest of the Mound (James 1980 cf Baldwin et al. 2008).

Salish peoples built permanent winter villages, consisting of one or more cedar plank longhouses with several families in residence (Elmendorf and Collins 1974; Haeberlin and Gunther 1930:15). Within the Bremerton and Mason County site vicinities, Suquamish, Squaxin, and other groups made use of the wide variety of habitats offered by the upland forest, marine estuary and bays, and wetlands such as those found along the Union River. The Chehalis were oriented to the river bearing their name but also made their way to the sea coast to utilize resources of the marine littoral.

Throughout the winter months, people congregated at village locations that were usually located on sheltered bays at or near the mouths of streams. Here they lived on a variety of stored foods, tending to winter work of making and repairing equipment, supplementing winter stored food with some hunting, and engaging in social exchanges such as feasts, ceremonies, and storytelling, which passed on history through the generations. When winter stores were giving out and the greens of spring appeared, small family groups left their villages and dispersed to camps along inlets, shallow bays, and creeks where they spent the spring, summer, and fall fishing, hunting, clamming, and gathering food. Some resources including salmon and clams, were harvested in quantity and preserved for winter consumption (Haeberlin and Gunther 1930). Salmon was an important element of the economy, but a wide variety of other fish, shellfish, roots, bulbs, and berries along with marine and terrestrial mammals was available). As evidenced by the shell middens found along the creeks near village sites and along the shorelines of the inlet, shellfish were an important part of the diet. Fishing and minding fish weirs in shallow bays would also have been important activities near village sites.

While most sustained activities were along saltwater shorelines and riverbanks, people went into the forested interior and uplands to hunt and forage for foods such as berries. Salish people are noted for their use of cedar and other plants for clothing, basketry, building, tools, and weapons. Forests like those in the project area were also important for canoe burials, a common practice among Puget Sound groups. In this funerary ritual, the body was wrapped in mats or blankets and placed in a large canoe which was suspended from the forks of trees. The canoe was often left for over a year, after which the body was removed and buried (Castile 1985).

The arrival of Euroamerican settlers in the late 18th century led to a period of rapid cultural change and demographic shifts in the Native American population (Boyd 1999). Smallpox and other epidemic diseases often affected native populations even before direct contact (Campbell 1989). After the establishment of Ft. Nisqually, Northwest natives traded regularly with the Hudson's Bay Company. The influx of trading post goods and shifts in hunting patterns required to obtain furs and hides for trade changed ages-old subsistence patterns. Logging, settlement, and development of communities throughout the region removed tracts of resource lands from native hands. Missionaries professed belief systems that conflicted with, and sometimes even forbade, native systems, which tended to mingle the spirit and physical worlds. Cultural transformation was rapid and dislocating.

Between 1854 and 1856, territorial governor Isaac Stevens negotiated treaties with Pacific Northwest tribes in an attempt to free up lands for white settlement. In 1855, Chief Seattle signed the Point Elliott Treaty on behalf of the Suquamish, which established the Port Madison reservation for several Puget Sound groups, including the Suquamish and Duwamish (Ruby and Brown 1992). The 1854 Treaty of Medicine Creek assigned the members of several politically autonomous groups of southwest Puget Sound, including the Squaxin, to the Squaxin Island Indian Reservation. The island is small and lacks suitable agricultural land, however, and was not occupied. Some Squaxin moved to the Skokomish (Twana) reservation, established at the head of Hood canal in 1874 by the Point No Point Treaty, while others took land on the Quinault Reservation. Some Squaxin tribal members refused to relocate, attempting to continue their native way of life, eventually settling in or near developing towns, taking work in timber and shingle mills or agricultural fields. Today most Squaxin reside off-reservation in the Shelton-Kalmilche area (Ruby and Brown 1992).

In 1864 a reservation was established by Executive Order at the confluence of the Chehalis and Black rivers for the Chehalis groups, who had not signed a treaty. Many Chehalis refused to go there. Some Upper Chehalis made their way to the Cowlitz and Nisqually Reservations; while Lower Chehalis went to the Quinault Reservation. Others continued to live in towns of Elma and Rochester in their ancestral territory. In 1866 a large portion of the Chehalis Reservation was opened to public domain for homesteading, and a number of Upper Chehalis families applied for homestead. In 1909, additional acreage from the reservation was restored to public domain (Ruby and Brown 1992:39-42).

In the decades following the treaties, federal policy was erratic, torn between its stewardship responsibilities to the sovereign tribes and continued desire for Indian lands by various interests, including mining and homesteading. The 1887 General Allotment Act (the Dawes Act) sought to remove reservation lands from communal ownership, attempting the twin aims of acculturation of native people by conferring individual title to land for ranching and farming, and selling off portions of the reservation lands. The policy led to fragmentation of reservation lands. The Indian Claims Commission, first authorized in 1946, allowed many Northwest tribes to seek reimbursement for lands taken from them, but other policies worked against their rights to sovereignty, with the result that some tribes actually lost their recognized status during this period. As opportunities for traditional subsistence activities and access to open lands declined, many native people found employment in the timber industry and agricultural fields, particularly hops and berry picking. While some tribal members adapted to reservation life, others settled in surrounding communities.

Although the treaties conferred certain reserved rights on the signatory tribes, the issue of resource use, particularly salmon, became a contentious issue in the late 1960s and early

1970s. Arguments over tribal fishing rights culminated in a far-reaching and influential court decision, *United States v. Washington* (384 F. Supp. 312), in 1974, when Judge George Boldt upheld the fishing rights reserved in treaties. The Boldt Decision established the right of 14 treaty tribes as well as others with federal approval to fish at "usual and accustomed places" and access to traditional resources even if they were not on reservation lands.

Today, many tribes are interrelated through treaties, language, religious beliefs, and through inter-marriage. Some of them are also united by cooperative agreements or arrangements for protection and pursuit of salmon and other resources.

Historic Period

In 1792, Captain George Vancouver led the first documented Euroamerican exploration of the Puget Sound region, exploring and mapping its features (Hayes 1999). In 1841, the United States Exploring Expedition, under command of Lt. Charles Wilkes, also surveyed the region, naming many of the inlets, islands and waterways. Fur traders soon made their way into the country, beginning with John Jacob Astor, who established the Pacific Fur Company post, Fort Astoria, at the mouth of the Columbia River in 1811. Long time rivals Northwest Company and Hudson's Bay Company (HBC) merged in 1821 under the HBC name and soon dominated trade in the Pacific Northwest with a trade network that included strategically-placed forts, including Fort Vancouver (1824) at the confluence of the Columbia and Willamette Rivers, Fort Langley (1827) at the mouth of the Fraser River, and Fort Nisqually (1833) midway between today's Olympia and Tacoma. Furs and other commodities were obtained from the various native groups in the Puget Sound area, and farming and livestock-raising developed to provision the trading posts (Kirk and Alexander 1990:309-310).

American and British claims in the Pacific Northwest led to a joint occupancy agreement in 1818, renewed in 1826. Not until the late 1850s did boundary commissions firmly delineate the international boundary. Settlement of the question led to establishment in 1848 of Oregon Territory and the beginning of a slow influx of settlers into the isolated area. In 1853, Washington Territory was carved out of Oregon Territory. The 1855 passage of the Donation Land Act (Homestead Act) encouraged settlers to head north beyond the Oregon Territory into the Pacific Northwest.

Areas along the coast of Puget Sound were most easily settled, with access to coastal waters and eventually to inland areas by way of the major rivers. The seemingly endless stands of timber were cleared first by hand with the help of oxen, providing lumber to build homestead cabins, barns, and fences, and making open land for small scale farming. In areas where transport by water facilitated moving timber out to other markets, various individuals set up sawmills. San Francisco, which burned several times in the 1800s, became a great magnet for Northwest timber, and this economic impetus attracted investors in timber and transport to the Pacific Northwest. Steam traffic began to connect the coastal communities, followed by networks of logging railroads that brought more timber from the interior to portside mills and docks.

In 1853, Isaac Ingalls Stevens was appointed the first territorial governor and also named *ex officio* Superintendent of Indian Affairs. During beginning in 1854, Stevens concluded a series of treaties that removed native people from their traditional lands, relocating most of them on reserves far from their home territory and effectively clearing land title for white settlers.

Bremerton Site

The Bremerton site is located on the south edge of the City of Bremerton, an area that grew from early logging and the development of a U.S. Naval facility. With demand for timber from San Francisco and other western markets, the thickly timbered lands of the Kitsap Peninsula brought sea captains and investors to the region in search of suitable places for business and settlement. Logging operations throughout the peninsula provided timber for sawmills situated at Port Gamble on the north of the Hood Canal and Port Madison on Bainbridge Island. Early logging practices involved clearing land by hand and skidding logs by ox team to the nearest waterway. The introduction of mechanized methods increased both the extent of geographic area that could be exploited and the level of profit. Mill towns became home to shipbuilding enterprises as well, and by the late 1880s, Kitsap timber was being shipped to markets all over the west as rail transportation added to shipping by sea, and more ships were produced in the area than in the entire San Francisco Bay area (Wilma 2006a).

From the 1850s to the 1930s, the peninsula was served by the Puget Sound's Mosquito Fleet, small steamers that carried passengers and goods along the coast. Kitsap County was reached by a privately-owned auto ferry in the 1930s and 1940s. In 1951, Washington State Ferries took over operation of the cross-sound ferries. The peninsula was eventually connected to the mainland by the Tacoma Narrows Bridge in the south and the Agate Pass Bridge connecting Bainbridge Island to the mainland. Development and improvement of Highway 16 between Bremerton and Tacoma connected the communities of Kitsap and Mason counties and increased access to recreational areas (Wilma 2006a).

In 1877, Lt. Barkley Wycott visited the Kitsap region with the U.S. Coast and Geodetic Survey. Noting the protected waters and abundant timber and other natural resources, he proposed construction of a U.S. naval base, and was later sent back to the area to begin buying up lands. A local settler, William Bremer, along with Henry Paul Heusel, determined that advent of a government facility promised a good future for the area and began to buy up land, selling part of it to the government with plans to begin developing the remainder. In 1892 as construction commenced on the naval base, Bremer began building the town that would become Bremerton. Although sawmills and shipping from the surrounding area contributed to the local economy, the growth of Bremerton was directly linked to the naval facility, with shipbuilding during the booms of both world wars and Korea providing the chief employment, and service businesses such as general stores, rooming houses, saloons, and less savory businesses growing to meet the demands of the military personnel stationed at the base (Caldbick 2010).

Incorporated in 1901, Bremerton eventually absorbed nearby communities, annexing the towns of Mannette and Charleston in the late 1920s. Nearby towns also saw the influence of the timber industry and the later the economic impetus of the military presence. Homesteaders who had settled the nearby small community of Belfair sold their claims to expanding lumber companies for the price of standing timber, only to see their lands cultivated by the Union Logging Company, which needed produce to feed growing numbers of workers housed in their camps. A brief flurry of mining activity in 1895 brought a number of individuals into the area to file placer claims along Mission Creek, but no real gold rush came of it (Kirk and Alexander 1990:372). The area benefited from the development of Bremerton as that community's economy grew with expansion of the naval base and associated services. However, Bremerton did not fare well in the post-war economy, as the shipbuilding and military deployment boom

faded out and nearby Bangor was selected as the home of the new Trident submarine fleet, shifting growth to the town of Silverdale down the road.

The Bremerton alternative site lies on the southern edge of the City of Bremerton, an area that was subjected to logging in the late 19th and early 20th century. The 1872 General Land Plat (GLO) for the area shows no development in the project area, although the site is in a central location between the watershed of the Union River with its many branching creeks to the north and west and another multi-branched watershed to the east (United States Office of Surveyor General 1872)(Figure 8). Historical activity may have been concentrated on lands along the trails from Case Inlet to Hood Canal. The area remained rural in character until recent years when development began to spread from the southern edge of the Bremerton.

Mason County Site

The Mason County site is located in the town of Shelton. Situated on Hammersley Inlet on Oakland Bay and the county seat, it developed as one of the major centers of the logging boom. The town was originally named Sheltonville, after one if its earliest settlers David Shelton, who later became a delegate to the territorial legislature. Shelton emigrated from Missouri to the Portland area in 1847 before making his way to Olympia, where he served on the first board of commissioners. When settlement in the northern area opened up after passage of the Donation Land Act in 1855, he established a claim on 640 acres on the shores of Oakland Bay and the prairie north of the future town. He continued to purchase land with timber (Becker 2010). Other families coming into the area formed the small settlement of Oakland about two miles up the shore. Soon the steamer scow, *Capitol*, connected Shelton and Oakland with other small settlements such as Arkada (Arkadia) and Kamliche (Becker 2010). During a brief conflict with natives due to dissatisfaction with the treaties, nearby Kamliche became the location of Fort Skookum a stockade where locals took refuge; however, the local natives did not join in the hostilities.

In 1854, Mason County was created from a part of old Thurston County. Originally named Sawamish County after the native residents, it was later renamed after Territorial Secretary of State and Acting Governor Charles Mason (Deegan 1971). In 1888 Shelton was designated as the county seat, and two years later the town was incorporated.

Although the area was heavily forested, timber harvesting began somewhat later than in other areas of the Northwest, awaiting the arrival of more settlers in the area. The first sawmill was built on Oakland Bay in 1883 and though not successful, the owner, William H. Kneeland, returned to the area within a few years to build the Kneeland Hotel and Shelton Opera House. Seattle investors believed that an area mill could succeed with construction of logging railroads. Their new mill and the Satsop Railroad, built on land purchased from David Shelton, brought some prosperity to the town, but it was founding of the Simpson Lumber Company that finally opened up the area to serious logging when mechanized logging with steam locomotives and donkey engines improved efficiency and garnered greater profits (Wilma 2006b). Saloons, hotels, general stores, and other services emerged with the influx of workers from the east and Europe who came to find employment in the lumber camps and mills (Becker 2010).

The Northern Pacific Railroad arrived in Shelton in 1926, connecting the area to other developing areas and attracting additional industry. Soon, four or five logging railroads converged in Shelton and the Northern Pacific Railroad sited a station in the City (Fredson 1993). Railroads ran timber from the Shelton area to mills at Port Blakely, Port Gamble, and

Seabeck to the north (Wilma 2006b). Pulp and paper manufactured at Shelton's Rayonier plant became a new source of employment, bringing additional families to the town. Although the plant provided employment to a large local work force, its site on Oakland Bay threatened another important local industry, oyster harvesting, because of ongoing problems with pollutants. In 1957 the plant was finally closed over concerns for damage to the oyster beds (Becker 2010).

About twenty-five miles northeast of Shelton, Allyn, another important town, grew up on Case Inlet. Timber harvesting drew early settlers to the Case Inlet area around 1854, when a water-operated lumber mill was set up on Sherwood Creek on the Inlet (Fredson 1993; Nigh n.d). By 1890, Allyn had a school, post office, newspaper, hotel, general store, and a wharf (Nigh n.d.). Along with lumber, the town shipped venison and huckleberries out to Tacoma and Olympia. The steamer *Detroit* made the run from Tacoma to Allyn, stopping in at Shelton as well. On logged off lands, small scale farming and ranching began to supply the logging camps with dairy, beef, and poultry products and produce. By the late 1890s, the town had a boatyard and wagon shop, and a long wharf had been built just north of today's Allyn dock. Other small towns reachable by boat were found along the major inlets, connected by steamer traffic that linked their products and services to one another and with outside markets.

Oyster harvesting began in 1859 with locals gathering oysters in the area tidelands, and became a major industry in the area in the 1890s when the oyster beds in Willapa Bay and Olympia had been depleted (Deegan 1971). In the late 1890s and early 1900s, when the state passed laws allowing ownership of tidelands, there were numerous commercial oyster growers. Experiments with commercial growing of the native oyster, however, were short-lived, as seed beds in the southern Sound declined due to over-harvesting and pollution from logging and other industries. The fast-growing Pacific oyster introduced from Japan soon out-competed the native species, becoming the focus for oyster farming, and eventually naturalized in the Pacific Northwest.

Due to over exploitation, the timber industry flagged in the Shelton and surrounding areas over the years, but cooperative agreements with the U.S. Forest Service introduced sustained yield management units that continued to supply the Simpson mills. Though at some remove from the military boom from the base at Bremerton, when the Navy Yard road reached the south shore of Hood Canal in the 1920s, the area began to develop resort and recreational resources. Tourism continued to increase in popularity as Mason County roads improved. When environmental concerns finally led to gradual closure of the Simpson pulp mill and other plants, worker layoffs affected the economy of Shelton and the surrounding area drastically. The Washington State Department of Corrections Correctional Center, located southwest of the Mason County alternative site, opened in 1964 and expanded in the early 1980s, bringing additional employment that was augmented by increasing recreational opportunities throughout the Hood Canal and Case Inlet areas.

The 1861 GLO shows no development in the immediate area; however a trail [redacted] (United States Office of Surveyor General 1861) (Figure 9).

Thurston County Site

The Thurston County site is located south of Grand Mound on a terrace above the Chehalis River. Named for Samuel Thurston, Oregon Territory's first delegate to Congress, Thurston County originally included what is now King, Pierce, Island, Jefferson, Chehalis, and Mason Counties. It was reduced to its current size in 1877 (Dougherty 2006). Establishment of Fort Nisqually in 1833 on the east side of the Nisqually River in today's Pierce County encouraged initial settlement in the area. The earliest settlers arrived in the mid 1840s in the Tumwater Falls and Olympia areas. Timber throughout the region and coal discovered in the southern part of the county provided economic opportunities that attracted additional settlement. When Washington Territory was created in 1853, Olympia was chosen as the territorial capital (Dougherty 2006). The town was incorporated in 1859, and became capitol in 1889 when Washington became a state.

Though small farms developed early on in Thurston County, the land was not greatly suited to most large scale agriculture, and eventually produce growing was replaced with dairy farming, along with cultivation of hay and berries. In the Olympia and Tumwater areas, another enduring industry began with opening of breweries, including the Olympia Brewing Company dating from 1896 (Dougherty 2006). When the Northern Pacific (NP) Railroad came into the Pacific Northwest, making Tacoma its terminus, the town of Olympia, which had been bypassed, built its own railroad to connect with the NP at Tenino in 1878. As in most of Western Washington, the timber industry dominated the economy. With a developing rail system and a growing port at Olympia, timber products could be shipped out to markets all over the world. By the 1940s, as the timber began to give out, government employment based in Olympia, grew into the largest employment sector.

The town of Grand Mound grew up around a noted landmark, the Grand Mound, a natural feature, on the prairie about 20 miles south of Olympia. The first settlers in the area, drawn to the prairie lands around Grand Mound, included the James family mentioned in the ethnographic section. They were followed by the family of Leonard Durgin, whose family built their homestead [redacted] and is shown as "Durgan" on the 1855 government land office plat (United State Surveyor General 1855). Durgin later became a member of the Washington Territory Legislature. The Axtell, Goodell, and Sargent families followed in settling the area (Baldwin et al. 2008).

Due to its visibility, the Mound was an early landmark and meeting place for explorers and travelers on the Oregon Trail in early 1800s. As settlers moved into the area, it became the locus of community activity including religious political, education gatherings. In 1854 a post office was established at Grand Mound, followed by creation in 1855 of what is possibly the oldest continuously occupied cemetery in Washington State. During the Indian Wars of 1855-1856, a large stockade Fort Henness, built at the nearby community of Rochester, provided protection for settlers fleeing native attacks (Kirk and Alexander 1990:352-353). But for the most part, local Chehalis peoples had good relations with the early white settlers, enhanced by the fact that natives were allowed to bury their dead in the Grand Mound cemetery.

The Chehalis River provided an early travel route for steamer service between towns along its banks. Goods bound for Puget Sound could be brought by river as far north as Ford's Prairie, then transported along a rough wagon road (Ott 2008). As settlers moved into the area, floodplain lands were drained for small-scale farming. The area surround Grand Mound, once a

productive camas ground use by native people, became important for growing fruit and vegetables. Local outwash soils were particularly suited to growing strawberries, and a local processing plant was built to ship them out (Kirk and Alexander 1990:352-352).

The Thurston County site is located on the grounds of the former State Training School for Girls. Established about one mile west of Grand Mound in 1913, it was the first state institution designated especially for girls. The school was built on land sold to the state by Theodore and Jennie Hoss and provided correctional care for girls ages 6-16 who had "committed crimes, been abandoned, or found incorrigible" (Boback 2008; S.S. and T.C. 1987). Along with education and training in "morality, temperance, and frugality", the girls learned vocational skills working the 200-acre farm, engaged in animal husbandry, bee-raising, and growing vegetable, nut and berry crops (S.S. and T.C. 1987). In 1959 the name of the State Training School for Girls changed to Maple Lane School. In 1961 the school began housing boys. During the 1981-1982 school year, female students were transferred to Echo Glen Children's Center in Issaquah, Washington. The school operated as the all male Maple Lane Juvenile Detention Facility until its recent closure (Maple Lane High School - Rochester School District 2010).

The 1884 GLO map shows several land claims with structures in the immediate area of the project, as well as [redacted] (United States Surveyor General 1855)(Figure 10). The Thurston County site encompasses the southwest portion of the Goodell land claim, which was situated along the trail from Olympia to Cowlitz Landing. The Judkins claim was immediately south.

Previous Cultural Resource Investigations

Archaeological investigations in Western Washington have focused on coastal areas, with less work done in the inland areas, including the Puget Sound inlets. Because investigations generally are related to a specific project or development, in some areas data is limited by a lack of coverage. Differing preservation environments also affect the archaeological record, so that the context of previous investigations informs the evaluation of archaeological potential.

Most recorded archaeological sites are shell middens located [redacted]. Artifacts and location indicate occupation over the last several thousand years. Midden sites typically contain fragmented shell and may include bone, fire-modified rock (FMR), and charcoal, with some recovery of chipped stone, ground stone, and bone artifacts. Most of these sites appear to be seasonal campsites used for shellfish collected, fishing, and hunting, reflecting a combination of coastal land hunting and intertidal food gathering (Nelson 1990).

Petroglyphs, images pecked into a rock surface, are found [redacted]. There is a southern Puget Sound petroglyph complex, characterized by faces and designs on [redacted] that appear to be related to village sites and may mark village territorial boundaries. They may also indicate areas of religious or spiritual significance. Almost all known petroglyphs and pictographs in Washington are found [redacted] where known village sites were also located. (Stilson et al. 2003:13, 15- 15, 48).

Bremerton Site

Archaeological knowledge on the Kitsap Peninsula is limited by the relatively small number of cultural resource surveys that have been conducted. Previous cultural resource investigations in the project area include reviews of transportation, utility infrastructure, and industrial development (Table 2.2-1). Of the handful of studies that have been carried out near the Bremerton site, two have involved limited pedestrian survey along SR 3, intersecting the northwest corner of the site close to the disturbed roadway (Goetz 2001, 2002). A third investigation encompassed much of the central portion of the parcel south of SW Flora Road. It involved pedestrian survey and examination of soil exposures. Visibility was reported as limited throughout the parcel due to forest vegetation (Berger 2007). No archaeological sites were reported by these investigations, and there are no previously identified sites within 0.5 miles of the Bremerton site.

Table 2.2-1
PREVIOUS INVESTIGATIONS WITHIN ~ 0.5 MI. OF BREMERTON SITE

Author	Date	Project	Relation To Alternative	Results[1]
Goetz and Warner	**1996**	**Cultural Resources Study for Cascade Natural Gas, Corporation's Proposed Phase 2 Kitsap Lateral Upgrade Project, Mason and Kitsap Counties, Washington**	**0.3 mi SE**	**None**
Goetz	**2001**	**Belfair Vicinity Improvements, SR 3, Mileposts 23.52 to 28.79, Cultural Resources Discipline Report**	**Intersects NW corner**	**None**
Goetz	**2002**	**Mason County Belfair Bypass, Section 106 National Historic Properties Act of 1996, No Adverse Effect Report**	**Intersects NW corner**	**None**
Berger	**2007**	**Preliminary Cultural Resources Assessment for the Industrial MultiUse Area Project**	**Encompasses central part**	**None**
Bundy	**2007**	**Letter Report: Section 106 Compliance, State Highways Safety Project, XL 2645**	**0.3mi W**	**None**
Bard and Sharpe	**2009**	**Technical Memo, Cultural Resources for Belfair Wastewater and Water Reclamation Facilities**	**0.2 mi W**	**None**

SOURCE: Department of Archaeology and Historic Preservation Database
[1] Newly recorded cultural material identified within one mile of Bremerton site.

Mason County Site

Previous cultural resource investigations in and near the Mason County site are limited, and no record was found of any investigations carried out for the site. An overview statement did not provide archaeological data for the project area (Andrews and Koler 2009). (Table 2.2-2). There are no previously identified sites within or adjacent to the Mason County site.

Table 2.2-2
PREVIOUS INVESTIGATIONS WITHIN ~ 0.5 MI. OF MASON COUNTY SITE

Author	Date	Project	Relation To Alternative	Results
Andrews and Koler	**2009**	**County-Wide Historic Context Statement and Reconnaissance -level Survey of US Highway 101**	**0.5 mi E**	**Overview**

SOURCE: Department of Archaeology and Historic Preservation Database

Thurston County Site

Previous cultural resource investigations in and near the Thurston County site include one survey that included part of the proposed building site and identified sites 45TH43 and 45TH44 (Table 2.2-3 and 2.2-4). A second investigation within the project area did not locate other sites. Other investigations were carried out nearby for an infrastructure improvement project and two private developments. Site 45TN43 is the general location of an open camp and habitation site reported to [redacted]. Flakes and detritus were found in the area but no additional cultural material was located (Welch 1969). [redacted] site 45TN44, [redacted], is an ethnographically recorded place. [redacted] was also the location of a historic homestead.

Table 2.2-3
PREVIOUS INVESTIGATIONS WITHIN ~ 0.5 MI. OF THURSTON COUNTY SITE

Author	Date	Project	Relation To Alternative	Results[1]
Welch	**1983**	**An Archaeological Survey of the Chehalis River Valley in Southwestern Washington**	**Encompasses**	**45TN43, 45TN44**
Loyd and Origer	**2004**	**A Cultural Resources Survey for the Chehalis Hotel and Convention Center Project, Grand Mound, Thurston County, Washington**	**0.5 mi E**	**None**
Baldwin and Gill	**2008**	**Archaeological Investigation at the [redacted], WA**	**0.1 mi NW**	**45TN44 update**
Bard et al.	**2008**	**Thurston County, Washington Grand Mound Outfall, Cultural Resources Assessment**	**Inside**	**None**
Randolph	**2008**	**The Results of Archaeological Survey and Shovel Tests for the Darryl Carley 2008 EQIP Project**	**0.2 mi S**	**None**

SOURCE: Department of Archaeology and Historic Preservation Database
[1] Newly recorded cultural material identified within one mile of Bremerton site.

Table 2.2-4
PREVIOUSLY RECORDED SITES WITHIN ~0.5 MI. OF THURSTON COUNTY SITE

Site No.	Compiler/Date	Age	Description	Relation To Alternative
45TN43	Welch 1969a	Pre-contact	Habitation site	[redacted]
45TN44	Welch 1969b; Kavanaugh 1981; S.S. & T.C. 1985 Baldwin 2008	Pre-contact and historic	Grand Mound Historic and Archaeological Site	[redacted]

SOURCE: Department of Archaeology and Historic Preservation Database

2.3 Cultural Resource Potential of Alternative Locations

Methods

NWAA consulted the Department of Archaeology and Historic Preservation (DAHP) database to obtain records of cultural resource investigations and previously recorded cultural resources within the three alternate sites. Published historic and ethnographic accounts, environmental data, historic maps, assessor records, and other relevant materials from NWAA's corporate library, University of Washington Libraries, and the Seattle Public Library were also consulted to develop background information that helped assess the potential for sensitive cultural resources to be present at each alternative site. In addition, various environmental and geotechnical reports on the project area provided by SPU were reviewed.

The criteria used to assess cultural resource sensitivity included local topography, resource and habitat availability, viewshed considerations, ethnohistoric associations, and the proximity of previously recorded cultural resources. Geologic and geomorphologic data indicates when the land became suitable for occupation and the suitability of landforms for pre-contact use, such as level terrain. Other significant factors include proximity of wetland, riverine, or lacustrine habitat; level areas with slopes less than 30% along terraces or ridge crests; views of adjacent lakes, wetlands, or river valleys; and opportunities for travel such as along river valleys and passages between drainage basins.

Ethnographic place names are obvious indicators of native presence in an area, with designations that include village locations, landmarks and other landscape features, resource gathering areas, and spirit places such as emergence sites of ancestors or legendary beings. Historic maps, including General Land Office (GLO) survey plats from the 1800s and early topographic maps, show historic habitats such as wetlands and stream courses that may have been altered by historic activities. They also show homestead locations, structures, trails, and early roads.

Sensitivity is apparent in places where pre-contact or historic period archaeological sites have been recorded. Knowing the extent of cultural resource investigations in an area with known sensitivities provides some measure of assessing the likelihood of undiscovered resources to be present. Depending on the nature and extent, local disturbance can reduce the potential for archaeological resources.

Traditional cultural properties, locations significant to Native American tribes and other ethnic groups, are generally known only to tribal members.

Cultural Resource Potential of Alternative Sites

Bremerton Site

The alternative site is on a gently sloping terrace overlooking the Union River with drainage to the west, wetlands to the north and southeast, and numerous creeks in the vicinity. The waters of Case Inlet and Lynch Cove are to the south. The variety of habitats found in the area would have provided a wide range of plant and animal resources useful to Native Americans. Ethnographic sources indicate Suquamish use areas in the vicinity. Villages of the Squaxin were south in the area of [redacted]. Twana groups resided not far to the west. Native trails from [redacted] connected Suquamish people and neighboring groups and other resource areas. The 1872 GLO plat shows [redacted] (Office of United States Surveyor General 1872).

Some logging took place within the project area, as evidenced by the current state of the vegetation and by numerous logging roads on site. No buildings are currently located on the proposed site, and no previous development is known. No archaeological sites have been identified; however, surveys carried out in the area relied on pedestrian reconnaissance and observance of soil exposures rather than systematic subsurface investigation.

Given the types of resource habitats that would have been available to native peoples in the surrounding creeks and wetlands and the site's lack of prior development, construction at the Bremerton site has the potential to disturb pre-contact archaeological resources. Lithic isolates and scatters on or near the surface would be the most likely finds, related to camping and resource procurement in the area. There is also some potential for remains related to logging of the area beginning in the late 1800s. Resources related to logging could include remains of camps such as building foundations, refuse middens, machinery, inclines, flumes, and signs of logging railroad spurs, including rails or grades.

Mason County Site

The alternative site lies within an area that would have provided a variety of plant and animal resources for native people. Wetlands, creeks, and small lakes provided riparian plants and attracted game and waterfowl. Nearby upland areas offered game and berries. A nearby prairie was a unique environment for gathering roots and berries and hunting. Fish and shellfish were available in Case Inlet and the other coves and inlets to the west. Ethnographic sources note that villages of the Squaxin were in the area of Lynch Cove and Coulter Creek northeast of the Mason County site. The 1861 GLO shows [redacted].

There has been limited cultural resource investigation of the Mason County site, though previously identified pre-contact and historic period sites have been recorded nearby. Given the resources that would have been available in the area and the proximity to Native American use areas in the inlets to the east and north, the site has potential for pre-contact finds such as lithic scatters and remains of camping places. Also, the [redacted] (United States Surveyor General 1856, 1861). As the site was previously logged, there is some potential for remains related to logging of the area beginning in the late 1800s. Resources related to logging could include remains of camps such as building foundations, refuse middens, machinery, inclines, flumes, and signs of logging railroad spurs, including rails or grades.

Thurston County Site

The proposed alternative site is located south of the city of Grand Mound on a terrace overlooking the Chehalis River. The watershed and surrounding lands, including nearby prairies, provided a variety of resources. An ethnographic village was located [redacted]. [redacted] is a significant place related to native oral history and activity.

The site is within the territory of the Upper Chehalis, who had a village [redacted] the Grand Mound, a burial area and landform of spiritual significance to the Chehalis people. The 1883 GLO map shows [redacted]. The Thurston County site encompasses the southwest portion of the Goodell land claim. The [redacted]. Another claim (Judson) lies immediately south of Goodell's. West of the homestead across the bend of the river is a side channel of the river and a large creek. Wetlands lie to the south and southwest and signs of oxbows and shifting channels are shown. South of the project is the former channel of the Chehalis River.

The Thurston County site is the location of the first female correctional institution in Washington. Development and operation of the school has disturbed surface deposits, but there is some potential for pre-contact materials such as lithic scatters to be found in undisturbed areas. Previous archaeological survey has provided limited coverage. It is also possible that remains related to the earlier structures and the farm associated with the girls' school formerly operated on this site could be found. Building foundations and timbers, farming implements and artifacts related to farming and the girls' general activities could be present. Historic period resources could also include features related to early settlement such as building foundations, fencelines, rock walls, ditches, ditches, privies, and refuse middens.

3 IMPACT OF ALTERNATIVES

3.1 Short term impacts

Impacts Common to All Alternatives

Construction-related ground disturbance has the potential to damage near-surface or buried archaeological resources. This kind of disturbance includes but is not limited to construction mobilization that includes equipment and materials storage; excavation; removal of existing buildings and foundations; utilities trenching and vault excavation, transportation-related construction such as parking or access roads; storm water management; grading; placing fill; mechanized grubbing and clearing; landscape planting.

Bremerton Site

The likelihood of disturbance to archaeological resources from project construction is greatest on the Bremerton site where there has been limited disturbance from previous development on the site and in surrounding areas. There are no known buildings or structures on the site.

Mason County Site

There is potential to disturb archaeological resources on the Mason County site from project construction. There are no known buildings or structures on the site.

Thurston County Site

The potential for disturbance to pre-contact archaeological resources from project construction is considered least likely at the Thurston County site, where development of the existing facilities has greatly altered the site; however, buried pre-contact archaeological resources could be uncovered in the undeveloped portions of the site, and historic-period resources related to the farm that once functioned as part of the Girls' School could be present throughout the site.

No Action

Under the No Action Alternative, the Proposed Actions would not be implemented and the Westside Prison Reception Center would not be built at any of the site alternatives, but the increased demand for additional long-term prison space would remain. Potential cultural resource related impacts associated with the No Action Alternative would be as follows:

1. **Site Alternatives** - Presumably, each site alternative would remain in its current use and could be redeveloped in the future, consistent with the comprehensive land use plan and zoning designation applicable for each site. Any future site redevelopment would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts to cultural resources from redevelopment.

2. **Washington Correctional Center (WCC)** – Under the No Action Alternative, it is assumed the amount of space dedicated to prison reception center uses would increase over time and long-term prison functions would decrease at the existing WCC. The change of use at the WCC associated with the No Action Alternative would not be anticipated to result in new cultural resource-related impacts.

3. **Additional Long-Term Incarceration Capabilities –** Under the No Action Alternative, it is assumed that additional long-term incarceration capabilities would be constructed to meet the projected increased demand for space as well as the displaced long-term prison space at the WCC due to increased prison reception center uses. Depending on the location of the additional long-term incarceration facilities, such construction could result in cultural resource-related impacts. Any future development of long-term prison space would be subject to the State Environmental Policy Act (SEPA) review process, which would address potential impacts to cultural resources.

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3.2 Long term impacts

Long term impacts are related to possible future expansion or re-configuration of the facility that are outside the scope of the present design. Ground disturbance related to future expansion or re-configuration of the facility could have an impact on undiscovered cultural resources in portions of the parcel not developed for initial construction of the facility.

Bremerton Site

The Bremerton site is currently undeveloped. If built at this location, the reception center would be sited near SR 3, and other portions of the parcel and surrounding area would remain undeveloped. Ground disturbance related to future expansion or re-configuration of the facility could have an adverse effect on undiscovered cultural resources in undeveloped portions of the parcel or surrounding undeveloped areas.

Mason County Site

The Mason County site is currently undeveloped. If built at this location, the reception center would be sited south of Dayton Airport Road (SR 102. Other portions of the parcel and surrounding area would remain undeveloped. Ground disturbance related to future expansion or re-configuration of the facility would entail ground disturbance that could have an adverse effect on undiscovered cultural resources in undeveloped portions of the parcel or surrounding undeveloped areas.

No Action

No impacts will occur with the No Action alternative – see above.

3.3 Secondary and cumulative impacts

Bremerton Site

Future use of the surrounding parcels is slated for industrial usage as part of the SKIA development area. Some logging may continue to take place on surrounding undeveloped parcels. The combined effects of these actions with location of the DOC Westside Prison Reception Center on this site may present increased threats to archaeological resources if they are present in the area.

Although no traditional cultural properties have been identified in background literature in this area, because of the relative lack of development at this site, noise and activity from construction, in conjunction with existing noise from Bremerton Airport and SR 3, has the potential to adversely affect any nearby site where tribal activities are being carried out. Some tribal traditional activities require privacy and quiet, and the greater noise level of these combined effects could intrude on traditional practices.

Mason County Site

The surrounding area is being increasingly developed with industrial and commercial uses. Expansion of other industrial uses related to the nearby airport and Port of Shelton may be reasonably expected to occur in the future. The combined effects of these actions with location of the DOC Westside Prison Reception Center on this parcel may present increased threats to archaeological resources if they are present in the area.

No Action

No impacts will occur with the No Action alternative – see above.

4 PROPOSED MITIGATION

For the SEPA and EO 05-05 processes, Section 106 of the National Historic Preservation Act (NHPA) provides guidelines for taking the effects of a project on cultural resources into consideration. The NHPA calls for project proponents to identify historic properties (i.e., those eligible for inclusion on the National Register of Historic Places) within the area of project effects.

Effects on those properties must then be evaluated for adverse effects by applying the Criteria of Adverse effects to determine of character-defining features of the historic property will be damaged or destroyed. When adverse effects have been identified, they can sometimes be avoided or minimized by re-design or changes to project components. When adverse effects cannot be avoided or minimized, measures to mitigate the effects must be agreed upon through consultation with DAHP, affected tribes, and other interested parties.

Bremerton Site

To avoid adverse impacts to cultural resources, additional archaeological survey, including subsurface testing using archaeological methods should be carried out in conjunction with the project design footprint to determine if archaeological resources are present. If discovered, they should be evaluated and adverse impacts from the project should be assessed. If the resource is determined to be a historic property, impacts should be avoided or minimized through measures determined in consultation with DAHP. If the project cannot avoid or minimize impacts, data recovery may be a suitable form of mitigation for project impacts. In addition, to avoid possible impacts to traditional cultural sites, the DOC should consult with the Suquamish Tribe regarding the potential presence of cultural resources of significance to the tribe within the Bremerton site area. This includes the potential for construction noise and activities to interfere with traditional use of nearby locations where cultural practices require privacy and quiet.

Mason County Site

To avoid adverse impacts to cultural resources, additional archaeological survey, including subsurface testing using archaeological methods should be carried out in conjunction with the project design footprint to determine if archaeological resources are present. If discovered, they should be evaluated and adverse impacts from the project should be assessed. If the resource is determined to be a historic property, impacts should be avoided or minimized through measures determined in consultation with DAHP. If the project cannot avoid or minimize impacts, data recovery may be a suitable form of mitigation for project impacts.

Thurston County Site

To avoid adverse impacts to cultural resources, additional archaeological survey, including subsurface testing using archaeological methods should be carried out in conjunction with the project design footprint to determine if archaeological resources are present. If discovered, they should be evaluated and adverse impacts from the project should be assessed. If the resource is determined to be a historic property, impacts should be avoided or minimized through measures determined in consultation with DAHP. If the project cannot avoid or minimize impacts, data recovery may be a suitable form of mitigation for project impacts.

The DOC should also consult with the Chehalis Tribe regarding the potential presence of cultural resources of significance to the tribe within the Thurston County site area.

5 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Completion of the process to identify, evaluate, and assess effects to cultural resources in consultation with SHPO and the affected Tribe(s) will avoid adverse impacts, if any are identified. In the event that project effects to historic properties are deemed unavoidable, the DOC must consult with DAHP and the affected Tribe(s) to consider acceptable mitigation that will resolve these effects. Mitigation may take the form of data recovery through excavation of an archaeological site, HABS/HAER documentation of an historic building, or another mutually agreed upon action to mitigate for project impacts.

None known.

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Figure 1. General location of site alternatives.

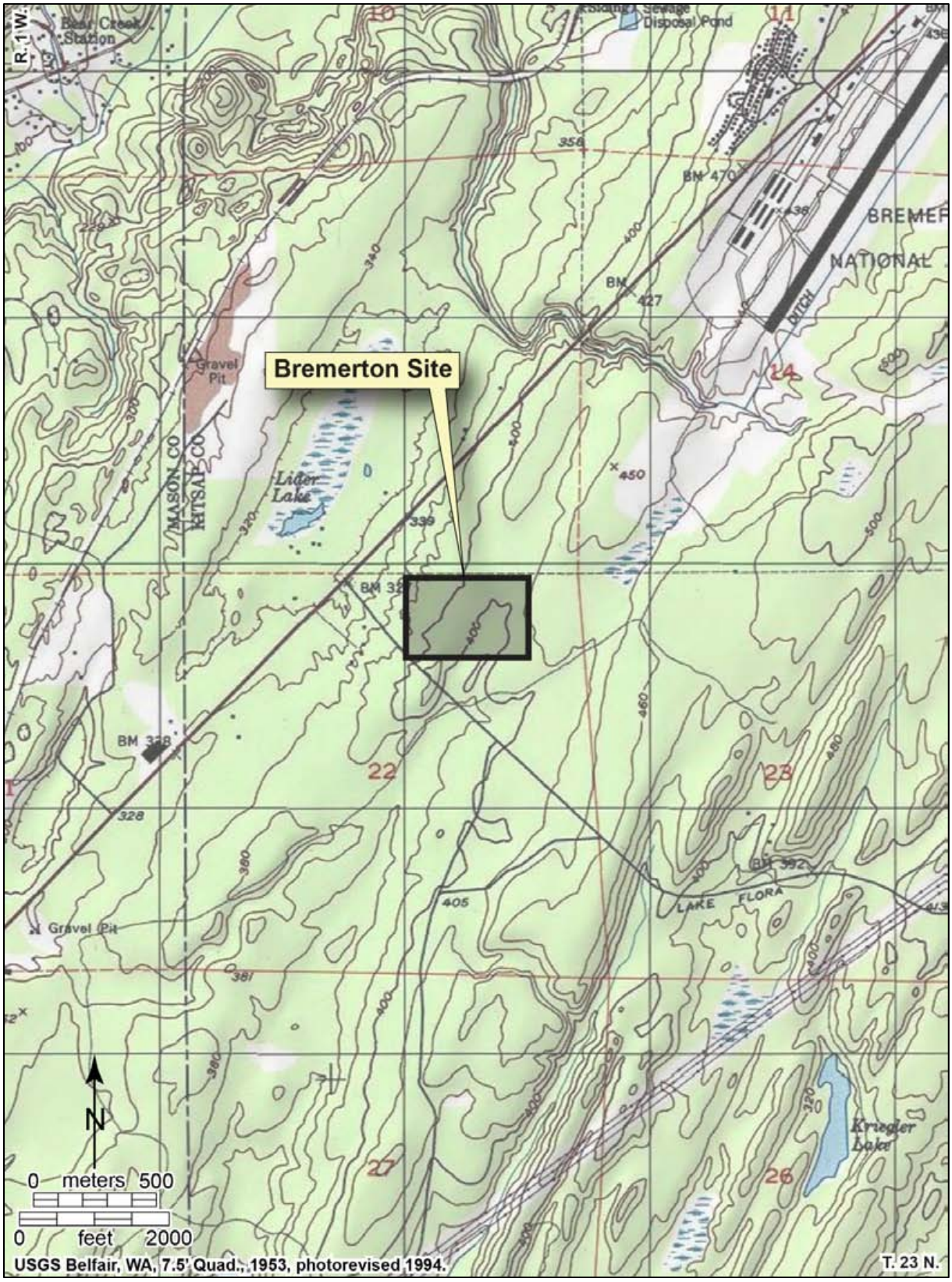

Figure 2. Bremerton site general location.

Figure 3. Bremerton site current conditions.

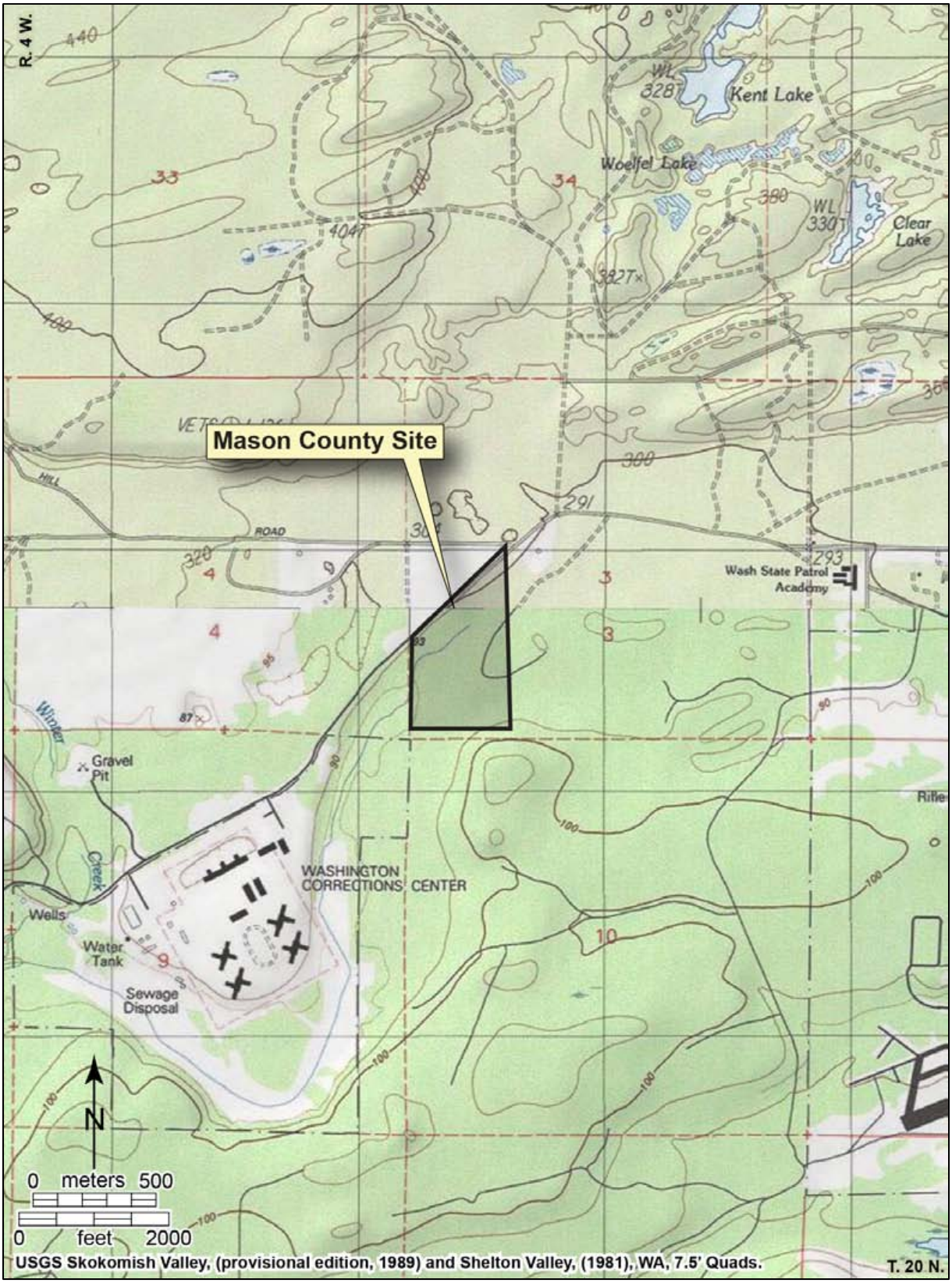

Figure 4. Mason County site general location.

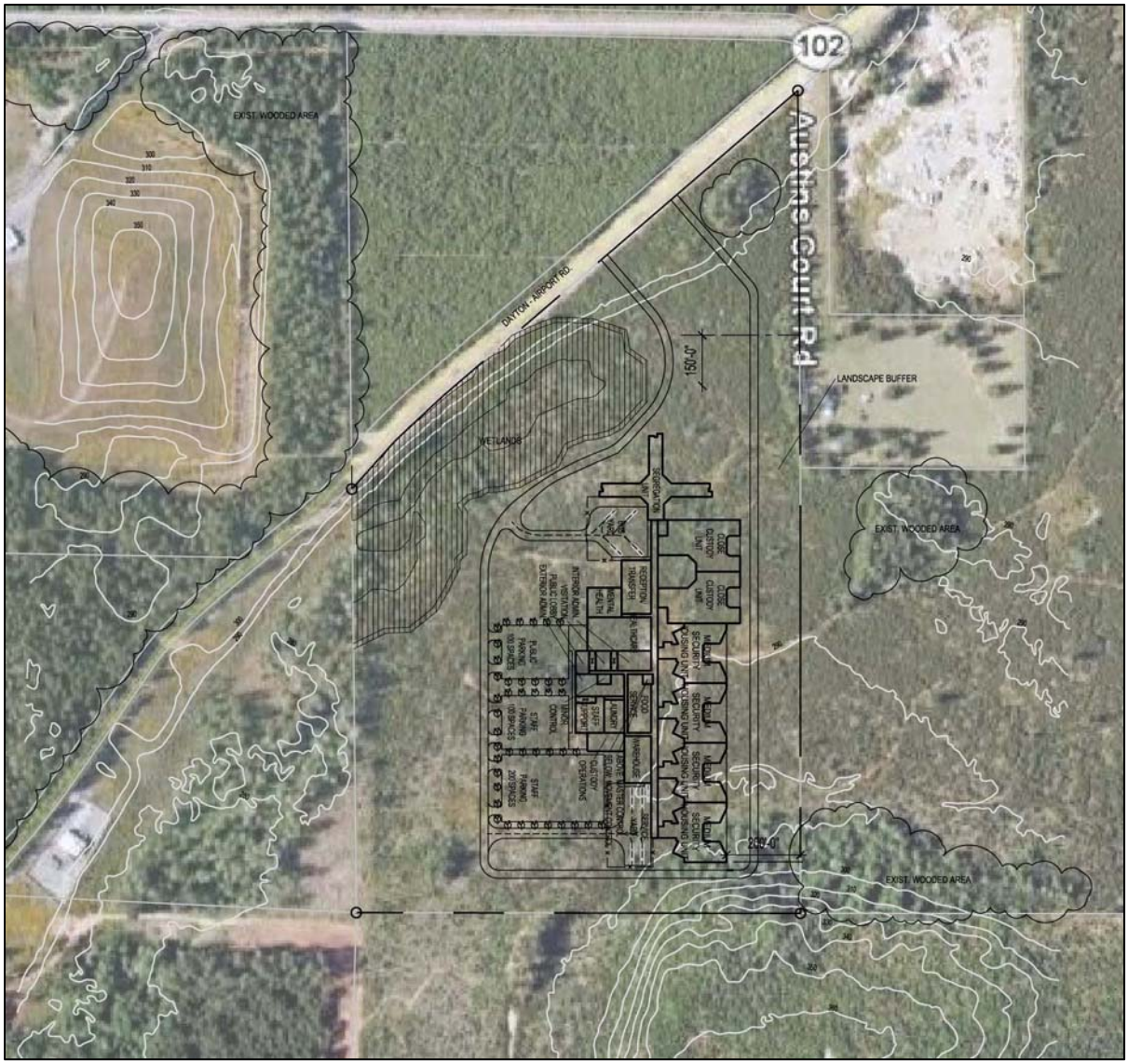

Figure 5. Mason County site current conditions.

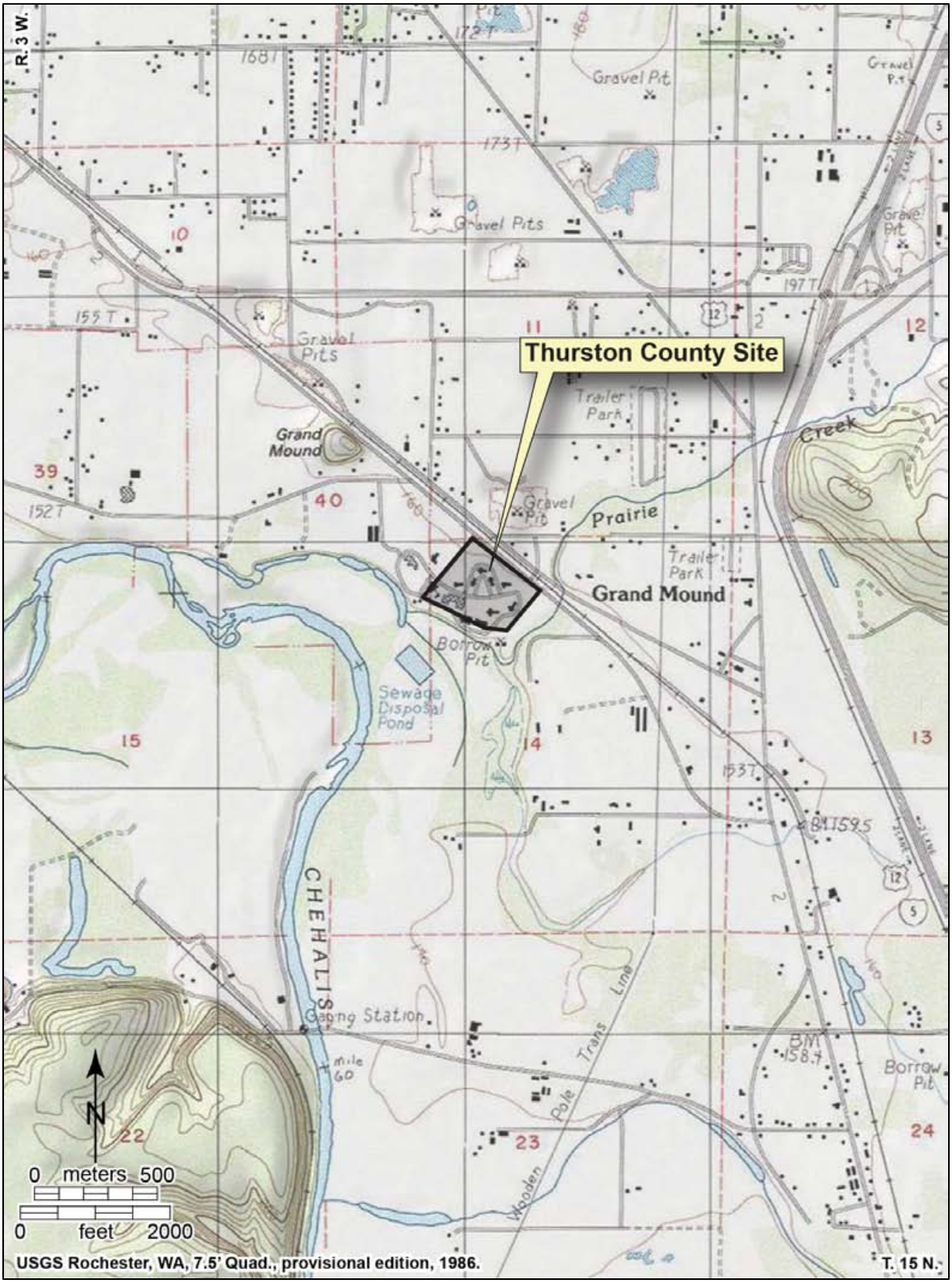

Figure 6. Thurston County site general location.

Figure 7. Thurston County current conditions.

IMAGE REDACTED

Figure 8. General Land Office plat, 1872, showing Bremerton site.

IMAGE REDACTED

Figure 9. General Land Office plat, 1861, showing Mason County site.

IMAGE REDACTED

Figure 10. General Land Office plat, 1855, showing Thurston County site.

CULTURAL RESOURCES REPORT COVER SHEET

Author: Jessie Piper

Title of Report: Department Of Corrections Westside Prison Reception Center Draft EIS – Cultural Resources Technical Report

Date of Report: November 22, 2011

County(ies): Kitsap Section: 22 Township: 23N Range: 1W
Mason Section: 11, 31 Township: 20N Range: 4W
Thurston Section: 11, 14 Township: 15N Range: 3W
Quad: Belfair, Skokomish Valley, Shelton Valley, Rochester
Acres: 118

PDF of report submitted (REQUIRED) ☒ Yes

Historic Property Inventory Forms to be Approved Online? ☐ Yes ☒ No

Archaeological Site(s)/Isolate(s) Found or Amended? ☐ Yes ☒ No

TCP(s) found? ☐ Yes ☒ No

Replace a draft? ☐ Yes ☒ No

Satisfy a DAHP Archaeological Excavation Permit requirement? ☐ Yes # ☒ No

DAHP Archaeological Site #:

_____
_____
_____
_____
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APPENDIX H

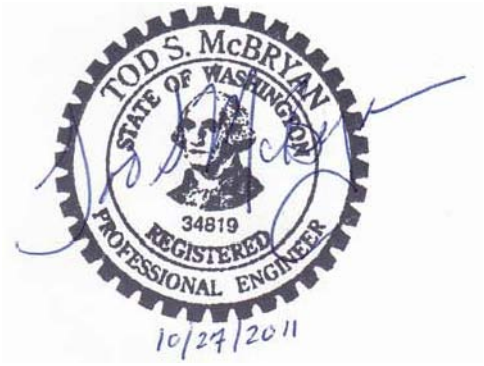
Transportation Technical Report

TRANSPORTATION TECHNICAL REPORT

WESTSIDE PRISON RECEPTION CENTER

PREPARED FOR:

WASHINGTON STATE
DEPARTMENT OF CORRECTIONS



PREPARED BY:

heffron
transportation, inc.
6544 NE 61st Street, Seattle WA 98115
ph: (206) 523-3939 • fx: (206) 523-4949

OCTOBER 27, 2011

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1. INTRODUCTION

The Washington State Department of Corrections (DOC) is preparing a Draft Environmental Impact Statement (DEIS) to evaluate three site alternatives for a new prison reception center with 1,024 beds. The sites being evaluated are located in Bremerton, Mason County, and Thurston County. At each of the alternative site locations, this report describes existing transportation conditions, identifies the potential impacts of the reception center to the roadway system, intersection operations, traffic safety, transit facilities, non-motorized facilities, and parking, evaluates access and circulation at the site, and describes transportation mitigation measures to address the identified impacts.

1.1. Description of Alternatives

The DOC is evaluating three potential sites in western Washington for construction and operation of a new prison reception center to serve its statewide male offender population. A reception center is the first place offenders go after sentencing. Offenders are brought to the facility from local jails throughout Washington. During the reception process, offenders are assessed for physical and mental health, security and management needs, and other needs such as education and chemical dependency treatment. Long-term correctional placement is determined after the assessment and offenders are transported from the reception center to the assigned facility for long-term incarceration. The typical offender would be housed at the reception center for about four weeks before being transferred to the long-term correctional facility.

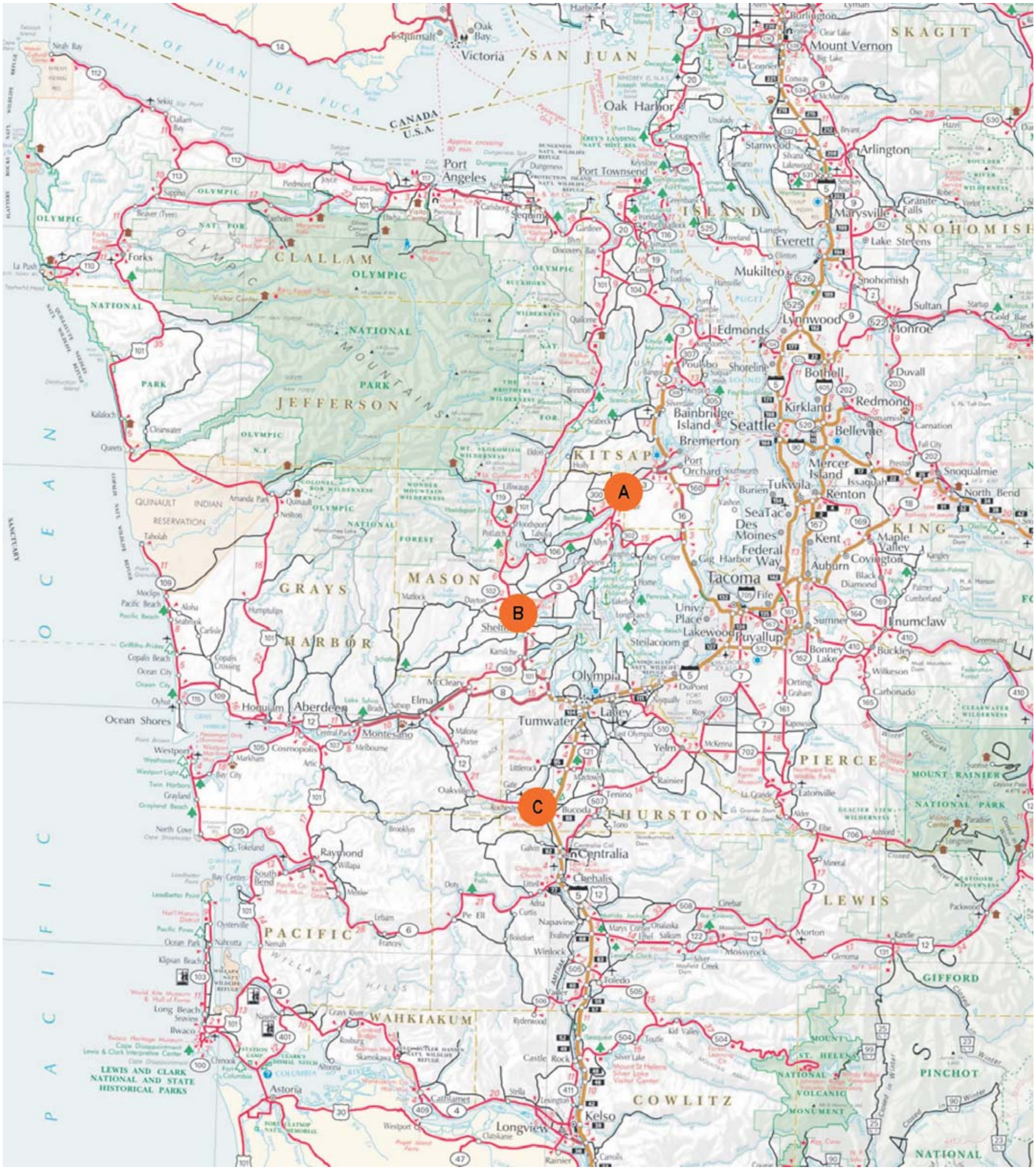
The proposed reception center facility would contain approximately 356, 000 square feet (sf) of building area and provide up to 1,024 beds, as well as areas of intake, assessment, classification, food service, health services, administration, and other support services. The proposed reception center would require a staff of approximately 478 personnel and on-site parking to accommodate approximately 400 vehicles. The proposed reception center is planned to be fully operational by 2016.

Three alternative sites are being considered for the proposed reception center, in Bremerton, Mason County, and Thurston County. Figure 1 shows the location of the site alternatives. The alternative site locations are described below.

- The Bremerton site, shown on Figure 2, is located southeast of State Route (SR) 3 and northeast of SW Lake Flora Road. The project site is undeveloped.

- The Mason County site, shown on Figure 3, is located south of SR 102 and northeast of the existing Washington Corrections Center (WCC), where the current reception process occurs. The project site is undeveloped.

- The Thurston County site, shown on Figure 4, is located at 20311 Old Highway 9 SW in Grand Mound. The site contains buildings and related facilities associated with the recently closed Maple Lane School (a juvenile correctional facility).



LEGEND

A Bremerton Site
B Mason County Site
C Thurston County Site

Source: EA Blumen, July 2011

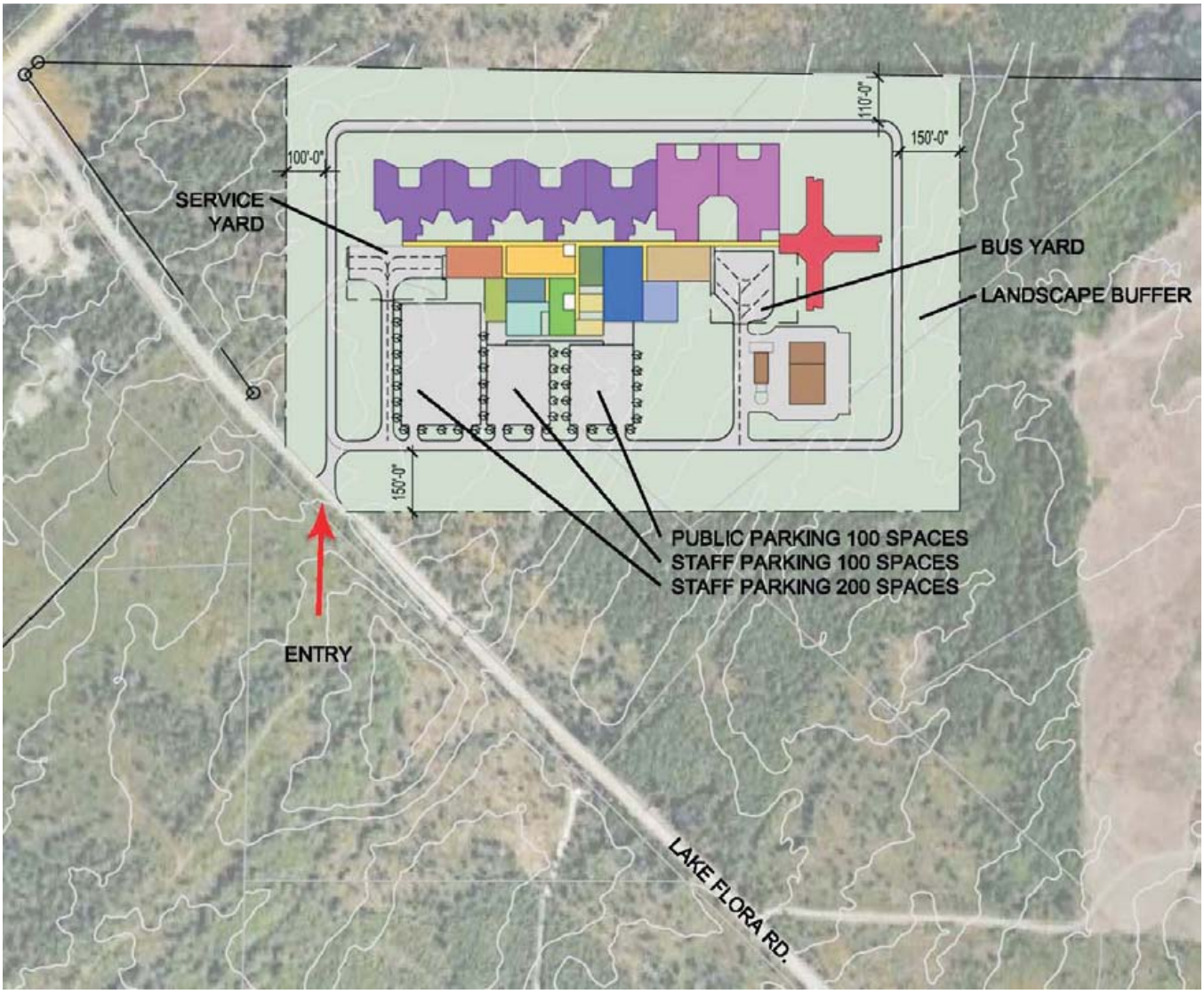
Figure 1

Department of Corrections
Westside Reception Center

WESTSIDE RECEPTION CENTER
ALTERNATIVE SITE LOCATIONS

heffron transportation, inc.

09.01.2011



LEGEND

SEGREGATION UNIT	HEALTH CARE	STAFF SUPPORT
CLOSE CUSTODY UNIT	INTERIOR ADMINISTRATION	CUSTODY OPERATIONS
MEDIUM SECURITY HOUSING UNIT	PUBLIC LOBBY	WAREHOUSE
RECEPTION / TRANSFER	FOOD SERVICE	CONTROL UNITS
MENTAL HEALTH	LAUNDRY	BUS BARN/MAINTENANCE

Source: Integrus Architecture, 08.24.2011

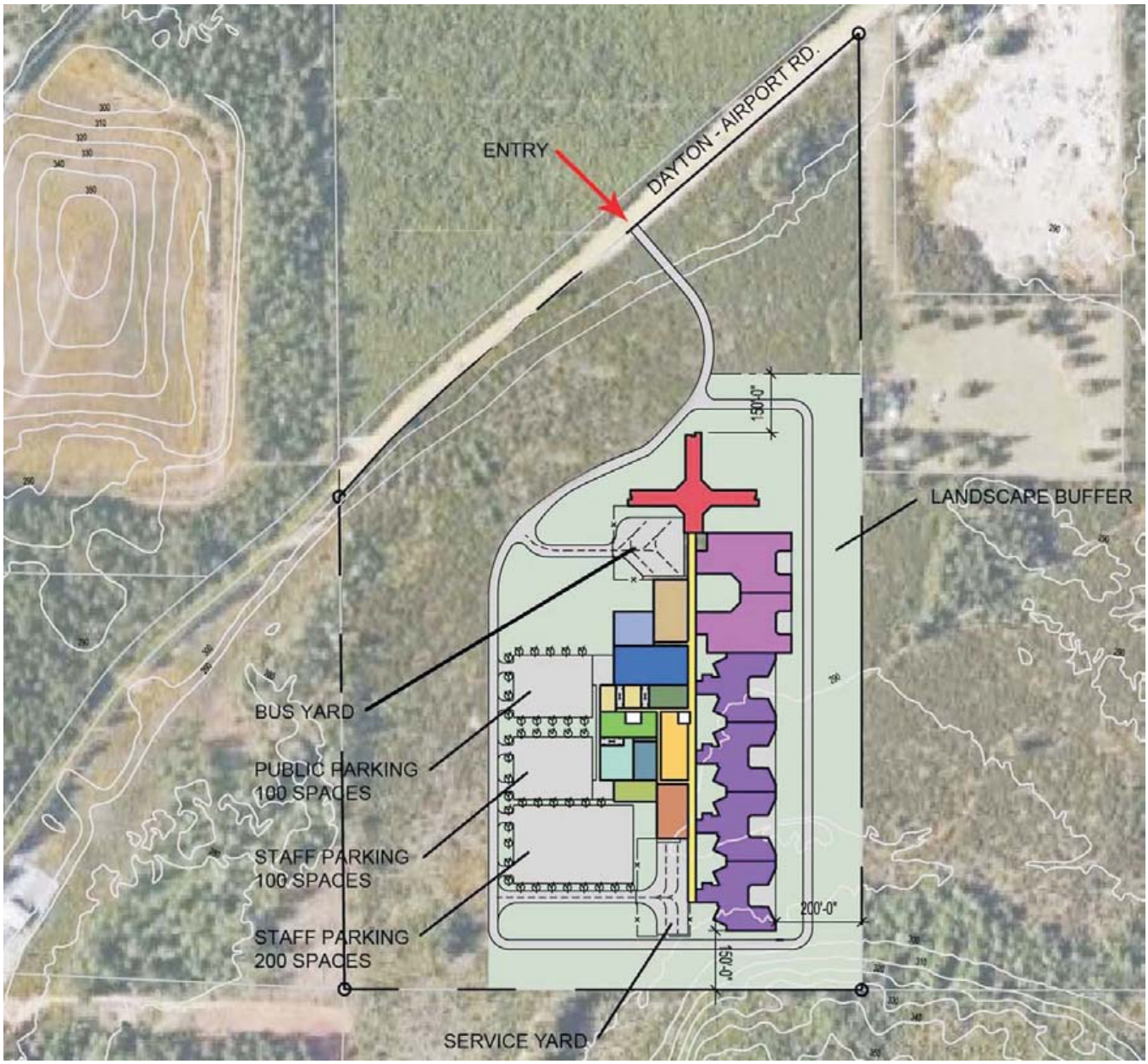
Figure 2

Department of Corrections
Westside Reception Center

SITE PLAN
BREMERTON ALTERNATIVE

heffron transportation, inc.

09.01.2011



LEGEND

SEGREGATION UNIT	HEALTH CARE	STAFF SUPPORT
CLOSE CUSTODY UNIT	INTERIOR ADMINISTRATION	CUSTODY OPERATIONS
MEDIUM SECURITY HOUSING UNIT	PUBLIC LOBBY	WAREHOUSE
RECEPTION / TRANSFER	FOOD SERVICE	CONTROL UNITS
MENTAL HEALTH	LAUNDRY	

Source: Integrus Architecture, 08.24.2011

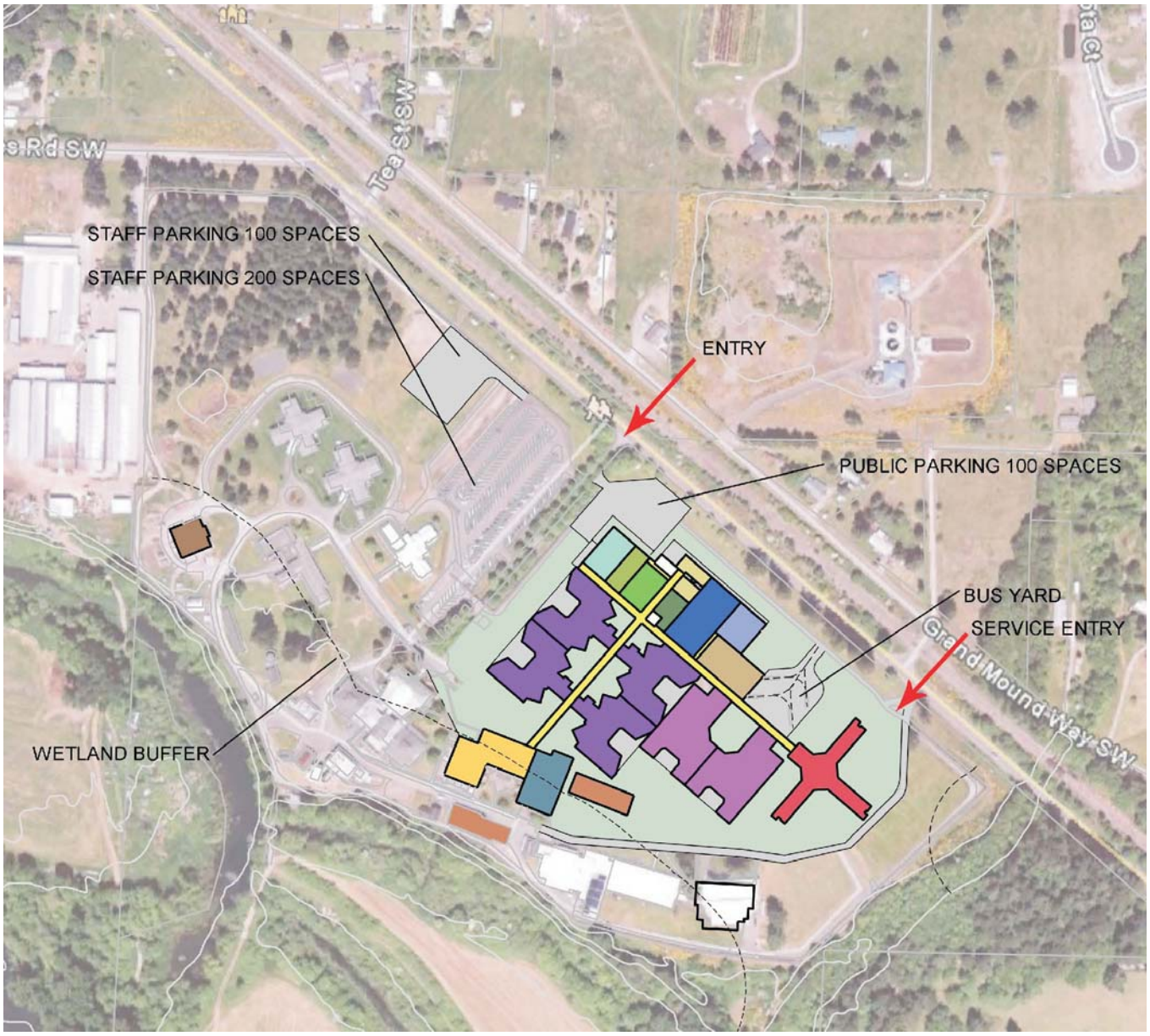
Figure 3

Department of Corrections
Westside Reception Center

SITE PLAN
MASON COUNTY ALTERNATIVE

heffron transportation, inc.

09.01.2011



Source: Integrus Architecture, 09/01/2011

Figure 4

Department of Corrections
Westside Reception Center

SITE PLAN
THURSTON COUNTY ALTERNATIVE

heffron transportation, inc.

09.01.2011

1.2. Study Areas and Analysis Periods

The transportation study area for each alternative site was defined in coordination with the local jurisdiction for that site and the Washington State Department of Transportation (WSDOT). The study areas for each site reflect locally adopted impact analysis guidelines where applicable. Analysis periods for the study area intersections consist of the weekday AM peak and PM peak hours. These are the times when the combination of project traffic and background traffic would be highest.

1.2.1. Bremerton Site

The City of Bremerton typically requires analysis of roadways or intersections that could experience increases in traffic of 2% or more.[1] Based on project traffic generation and distribution estimates, the City of Bremerton and WSDOT requested analyses at the following intersections (anticipated traffic control is also listed). The Bremerton transportation study area is shown on Figure 5.

- SW Lake Flora Road / Site Access Driveway – stop-controlled on.
- SW Lake Flora Road / SR 3 – Lake Flora Road approach is stop-controlled.
- SW Lake Flora Road / JM Dickinson Road – SW Lake Flora Road (eastbound approach) is currently stop-sign controlled; future roundabout control.

1.2.2. Mason County Site

Based on project traffic generation and distribution estimates, Mason County and WSDOT requested analyses at the following intersections. The Mason County transportation study area is shown on Figure 6.

- SR 102 (W Dayton Airport Road) / Site Access Driveway – stop-controlled on driveway.
- SR 102 (W Dayton Airport Road) / US Highway (US) 101 – SR 102 (W Dayton Airport Road) approach is stop-controlled.
- SR 102 (W Dayton Airport Road) / W Eells Hill Road (PM peak hour only) – W Eells Hill Road approach is stop-controlled.

1.2.3. Thurston County Site

Thurston County's traffic impact analyses guidelines typically require analyses at intersections that could be impacted by 25 or more peak hour trips.[2] Based on project traffic generation and distribution estimates, Thurston County and WSDOT requested analyses at the following intersections. The Thurston County transportation study area is shown on Figure 7.

- Old Highway 9 SW / Site Access Driveways – stop-controlled at driveways.
- Old Highway 9 SW / Carper Road SW – Carper Road SW approach is stop-controlled.
- Old Highway 9 SW / US 12 – Old Highway 9 SW approach is stop-controlled.
- Old Highway 99 SW / US 12 / Elderberry Street SW – signalized.
- Old Highway 9 SW / Old Highway 99 SW – Old Highway 9 SW approach is stop-controlled.

[1] City of Bremerton Municipal Code Section 11.12.060.
[2] Thurston County Road Standards Chapter 5 – TIA Guidelines

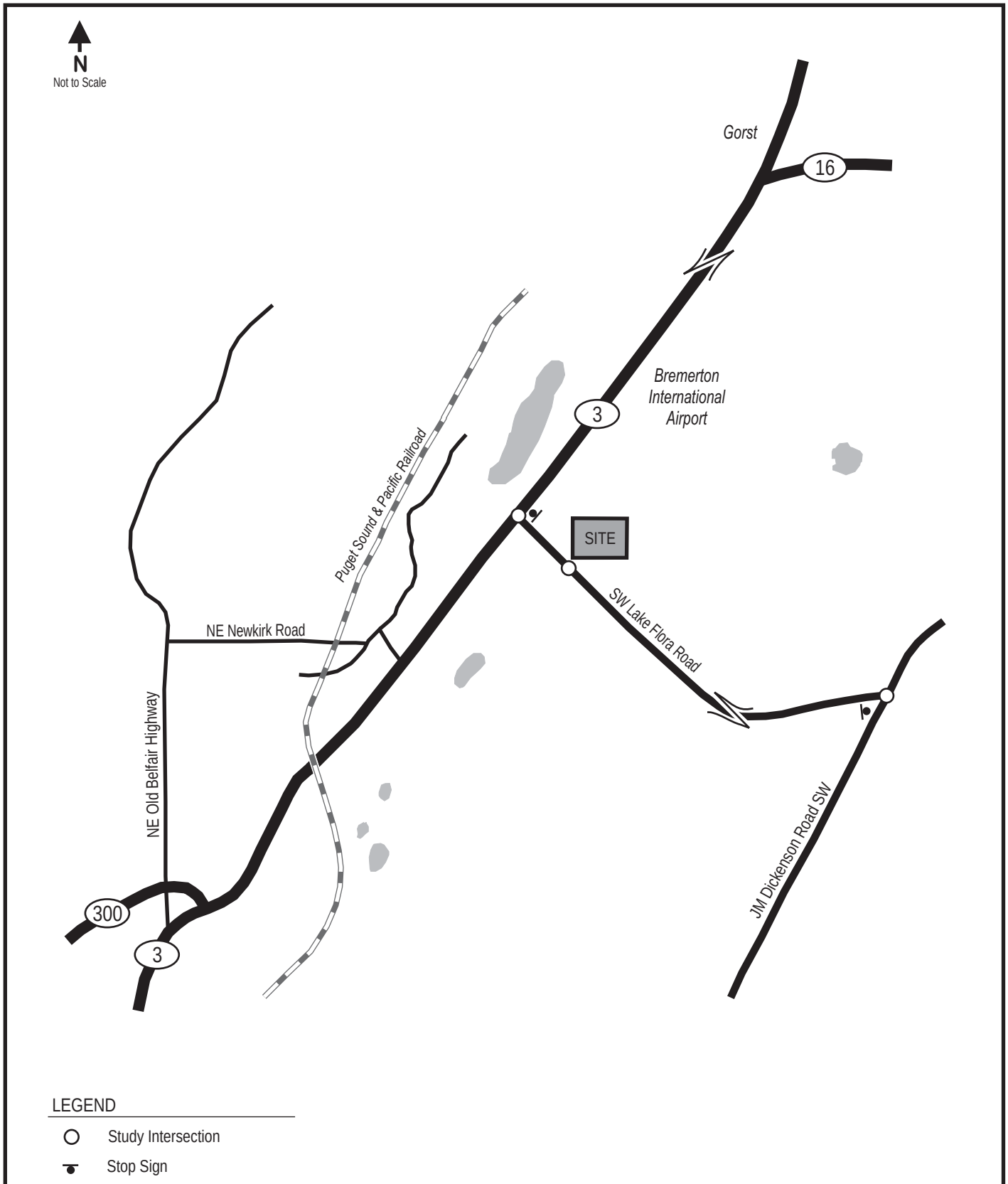


Figure 5

STUDY AREA
BREMERTON SITE

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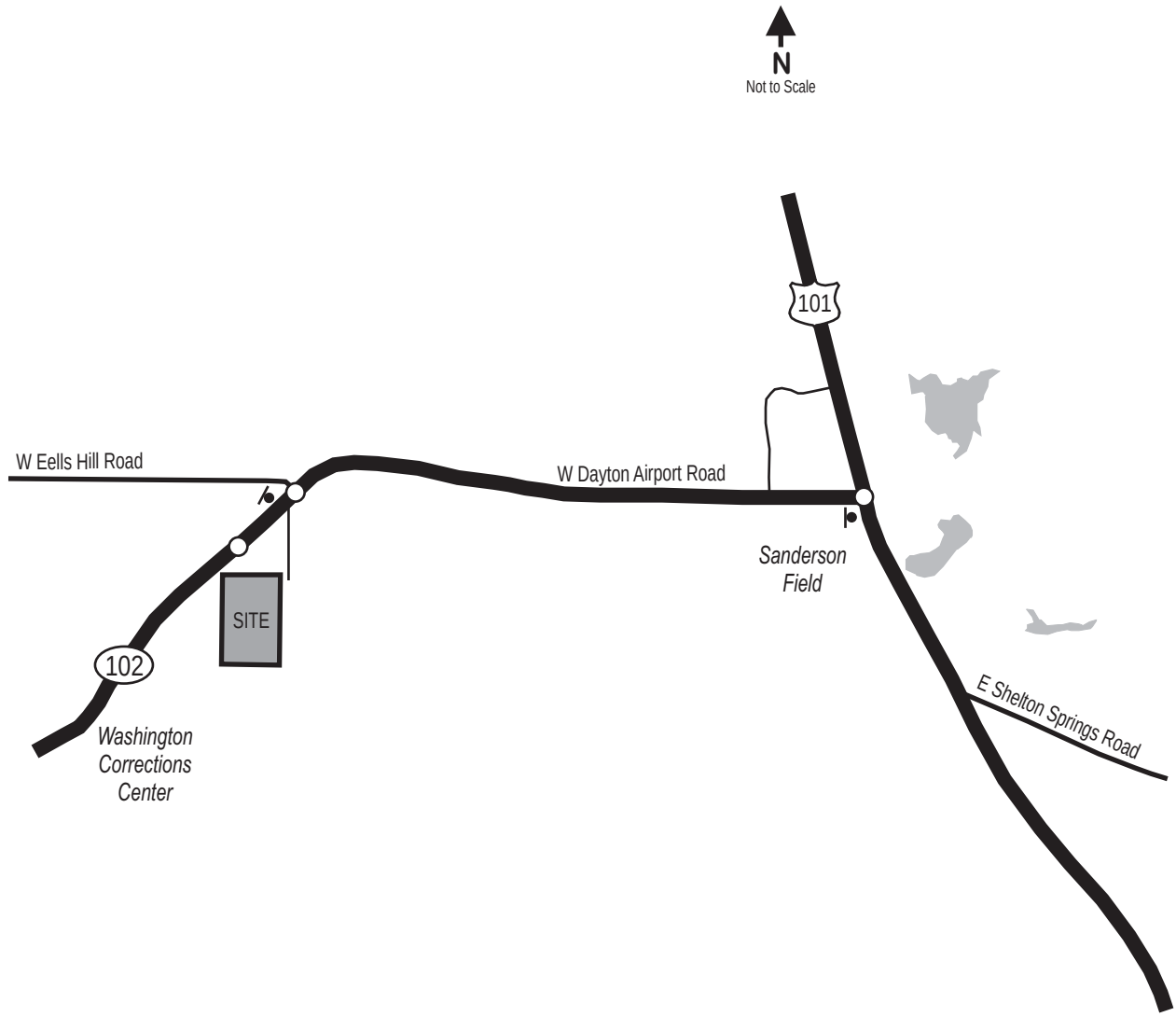

LEGEND

- Study Intersection
- Stop Sign

Figure 6

STUDY AREA
MASON COUNTY SITE

Department of Corrections
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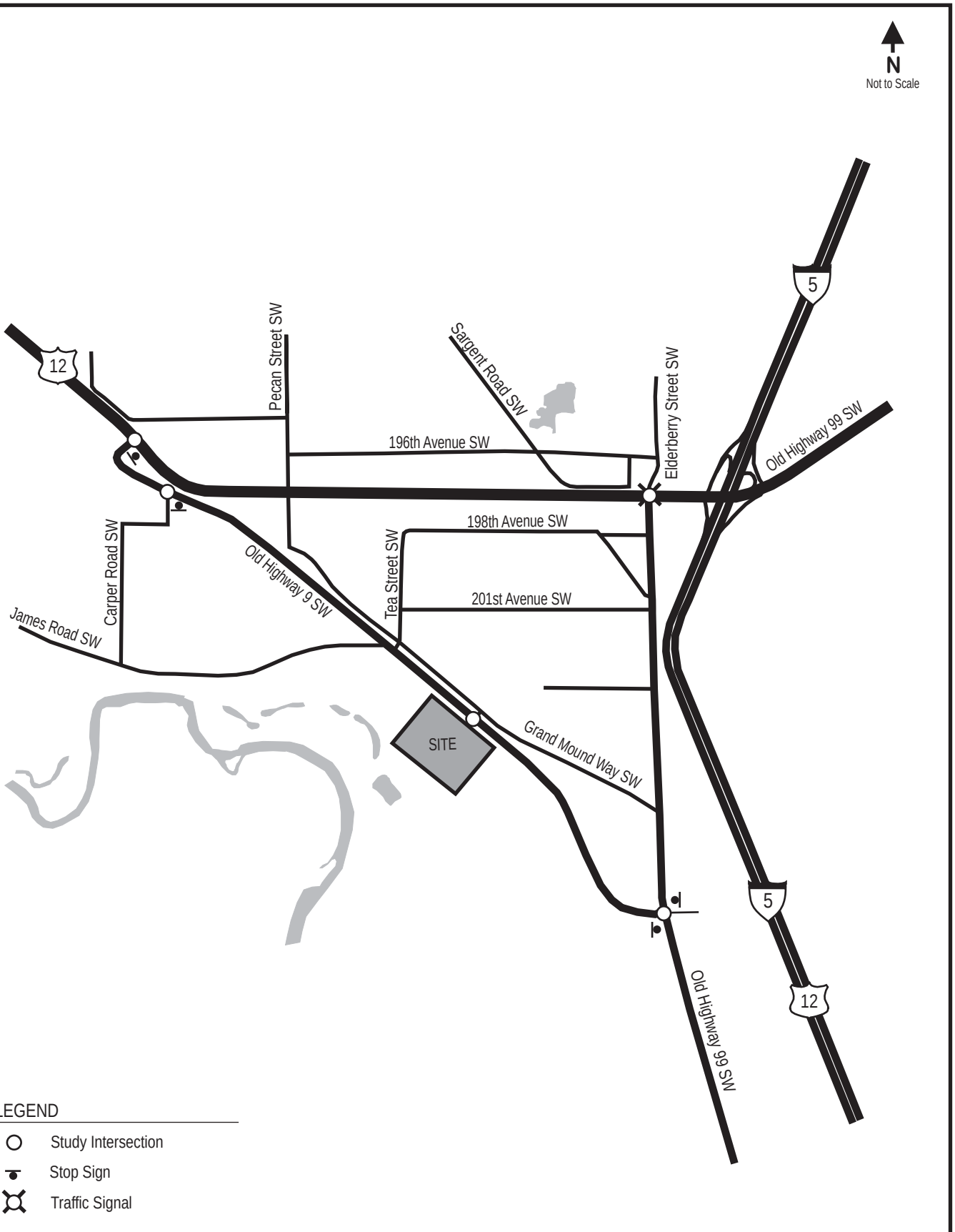

Figure 7

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STUDY AREA
THURSTON COUNTY SITE

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2. AFFECTED ENVIRONMENT

This chapter discusses existing and projected future conditions at each of the three alternative sites without the proposed DOC Westside Prison Reception Center. These are the baseline conditions against which project impacts are evaluated. Future year conditions are presented for 2016, which is the year the proposed reception center is expected to be constructed and operational.

2.1. Bremerton Site

2.1.1. Transportation Network

Characteristics, such as street classification, speed limits, and traffic control, of the key roadways and intersections in the Bremerton site vicinity are summarized in Table 1.

Table 1. Summary of Study Area Roadway Characteristics – Bremerton Site

Characteristic	SW Lake Flora Road	SR 3
Street Classification	Minor Arterial [1]	State Route – Highway of Statewide Significance [2]
Speed Limit (mph)	50 in site vicinity	40-55
Lanes	2	2-3 lanes, with turn-pockets at most intersections
Street-Edge Condition	Gravel shoulders on both sides near site; paved shoulders southeast of site	Paved shoulders on both sides
Bike Lanes	None existing – future bike lanes included in Kitsap County Bicycle Facilities Plan [3]	None existing – future bike lanes included in Kitsap County Bicycle Facilities Plan [3]
Parking	None	None
Lane Restrictions	None	None
Transit Stops	None	None
Traffic Control & Signal Locations	Stop sign at SR 3 Stop sign at JM Dickenson	Traffic signal at Imperial Way SW

1. *Kitsap County Comprehensive Plan DEIS, 2006.*
2. *Highways of Statewide Significance (HSS), designated under RCW 47.06.140, include interstate highways and other principal arterials that are needed to connect major communities in the state. http://www.wsdot.wa.gov/planning/HSS/Default.htm*
3. *The Kitsap County Bicycle Facilities Plan identifies a high-priority future 5-mile bike lane project beginning on SW Lake Flora Road at Sunnyslope Road SW, continuing on Glenwood Road SW to SW Lider Road, and continuing on SW Lider Road to Bethel-Burley Road. Bike lanes or a separated trail have been identified for SW Lake Flora Road west of Sunnyslope Road and SR 3 to the Mason County line as a low priority project. Neither project is currently included in any capital improvement programs.*

The *WSDOT Statewide Transportation Improvement Program (STIP)*[3] was reviewed; no projects were identified in the study area through 2016. However, WSDOT is planning to add a northbound right-turn lane on SR 3 at the SW Lake Flora Road intersection. Since this project is planned for construction in the first year of the 2013-2015 Biennium, it was assumed for all future conditions analyses. In addition, the *Belfair Bypass Environmental Assessment* (EA) is currently being prepared. This project would potentially realign the SW Lake Flora Road/SR 3 intersection at some future date (likely after 2025).[4] The proposed reception center site is not located within the right-of-way for the conceptual plan currently identified for the bypass project.

[3] WSDOT, 2011. http://www.wsdot.wa.gov/localprograms/ProgramMgmt/STIP.htm
[4] Email communication, Dale C. Severson, P.E. Development Services Engineer - WSDOT Olympic Region, July 28, 2011.

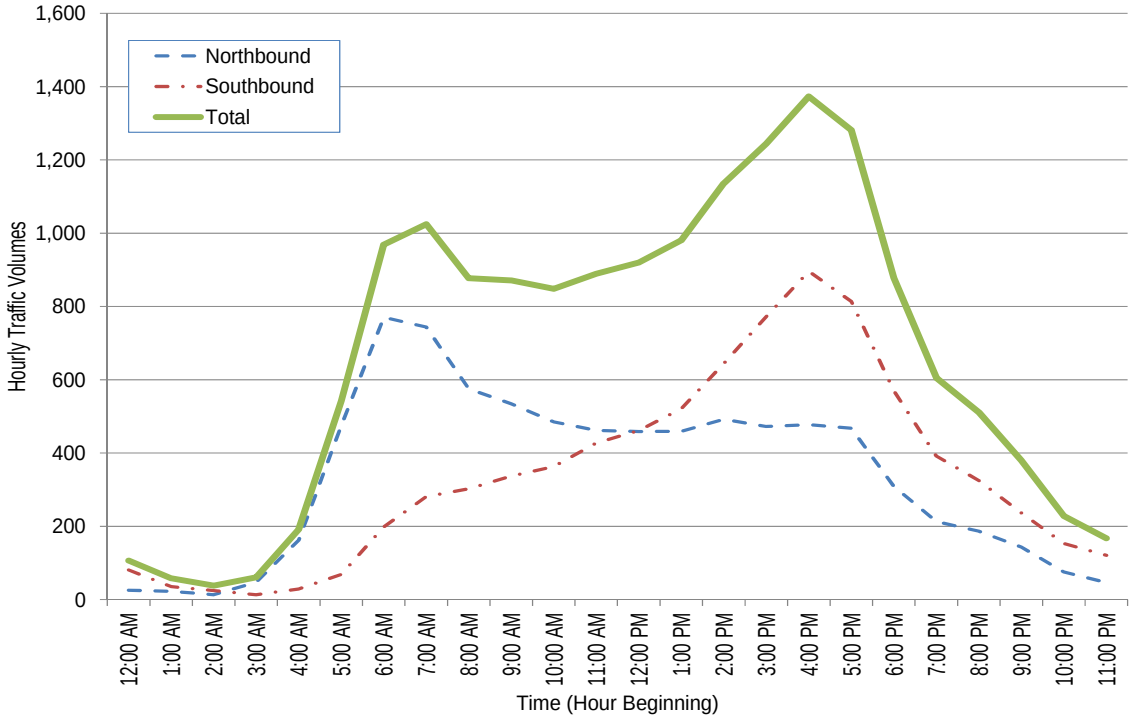
The *Kitsap County 2011 – 2016 Transportation Improvement Program* lists one project in the study area. Project #4—the Lake Flora Road Phase 2 Intersection Improvements—would reconfigure the existing stop-sign controlled SW Lake Flora Road/JM Dickenson Road intersection into a roundabout. Construction is scheduled from August to December 2011. The new roundabout control at this intersection was assumed for all future conditions analyses.

The *South Kitsap Industrial Area (SKIA) Draft Planned Action Environmental Impact Statement*[5] recommends eventual widening of SR 3 to four lanes in the project study area and signalization at SW Lake Flora Road; however, this improvement is not included in any current Transportation Improvement Programs and is not expected to be constructed by 2016. No other study area transportation improvements were identified by the City of Bremerton or assumed for future conditions analyses.

2.1.2. Traffic Volumes

WSDOT regularly performs traffic counts on highways statewide; seven-day machine traffic counts performed in May 2010 on SR 3 near the site were obtained. Figure 8 shows the average weekday hourly traffic volumes by direction on SR 3, which carries an average of 16,200 vehicles per day. The figure shows a directional traffic pattern on SR 3 in which peak northbound flows (toward Bremerton) occur in the morning and peak southbound flows (away from Bremerton) occur in the afternoon. The highest volume on SR 3, a two-direction peak of about 1,370 vehicles per hour, occurs between 4:00 and 5:00 P.M.

Figure 8. Hourly Traffic Volumes on SR 3 in Bremerton Site Vicinity

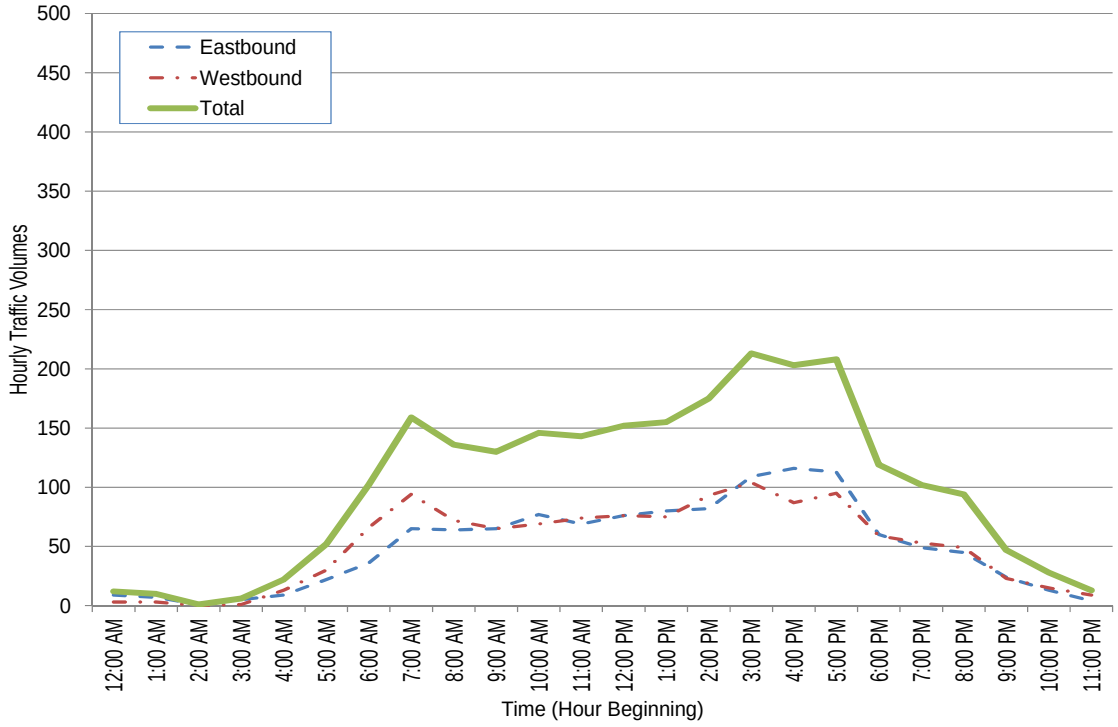


Source: WSDOT Seven-day count, May 2010.

[5] City of Bremerton, June 2011.

Additional seven-day machine traffic counts were conducted on SW Lake Flora Road near the site in May 2011. Figure 9 shows the average weekday hourly traffic volumes by direction on SW Lake Flora Road, which carries an average of 2,430 vehicles per day. The figure shows that the peak flows in both the eastbound and westbound directions occur in the afternoon. The westbound volume (toward SR 3) is slightly higher than eastbound in the morning, and the eastbound volume (away from SR 3) is slightly higher than westbound in the afternoon. The highest volume on SW Lake Flora Road, a two-direction peak of about 210 vehicles per hour, occurred between 5:00 and 6:00 P.M., but the hourly volumes are relatively close in each hour between 3:00 and 6:00 P.M.

Figure 9. Hourly Traffic Volumes on SW Lake Flora Road in Bremerton Site Vicinity



Source: All Traffic Data, May 2011.

New AM and PM peak period counts (from 7:00 to 9:00 A.M. and from 4:00 to 6:00 P.M.) were conducted at the SR 3/SW Lake Flora Road intersection on Tuesday, May 17, 2011. At the SW Lake Flora Road/JM Dickenson Road intersection, PM peak hour traffic volumes were obtained from Kitsap County's *Lake Flora Traffic Study – Intersection Realignment*.[6] This study was prepared for the planned project at the SW Lake Flora Road/JM Dickenson Road intersection that will convert it to roundabout control. PM peak hour traffic counts performed for that study in 2008 were projected to 2011 using the same 2% annual growth rate applied in the *Intersection Realignment* report to estimate long-range future (2028) traffic conditions. AM peak hour turning movements were estimated based on AM peak hour roadway segment volumes from counts performed by Kitsap County in 2008 as part of the same study. Existing AM and PM peak hour traffic volumes at the Bremerton study area intersections are shown on Figure 10.

[6] Kitsap County Traffic Division, August 22, 2008.

Forecasted traffic volumes for 2016 without the project were estimated by applying a compound annual growth rate to the existing traffic volumes. Based on review of recent historical traffic counts performed by WSDOT along SR 3, average daily traffic has remained virtually unchanged since 2007.[7] However, a recent long-range analysis prepared for the *SKIA*[8] projected study area traffic volumes for the year 2030. These forecasts were developed using a refined version of the Puget Sound Regional Council (PSRC) travel demand model. Based on the 2030 forecasts developed for the SKIA No Action Alternative, traffic volumes at study area intersections are expected to increase at a rate of about 1.5% annually.

The City of Bremerton identified two potential development projects that could also generate additional traffic in the area—the Motorsports Park and the Safe Boats International expansion. However, these projects have not advanced to the permitting stage and estimates of their traffic generation and assignment have not yet been developed. Therefore, to provide a conservative worst-case for future traffic projections, a 2% annual growth rate was applied to existing traffic volumes to represent year 2016 without-project conditions. This approach was coordinated with City of Bremerton staff and is consistent with the forecasting approach used by Kitsap County for the analysis of the SW Lake Flora Road/JM Dickenson Road roundabout project. Figure 11 shows 2016 without-project AM and PM peak hour traffic volumes at the Bremerton study area intersections.

2.1.3. Intersection Operations

Level of service (LOS) analyses were performed for the off-site study area intersections. Level of service is a qualitative measure used to characterize traffic operating conditions. Six letter designations, "A" through "F," are used to define level of service. LOS A is the best and represents good traffic operations with little or no delay to motorists. LOS F is the worst and indicates poor traffic operations with long delays. Levels of service for the study area intersections were analyzed using methodologies presented in the *Highway Capacity Manual 2010 (HCM 2010)*.[9] All level of service calculations were performed with Trafficware's *Synchro 8.0* analysis software. Results are reported using the *Highway Capacity Manual 2010* module. Appendix A presents the level of service thresholds and definitions for signalized and unsignalized intersections.

Table 2 summarizes existing and projected 2016 without-project levels of service for the intersections within the Bremerton study area. As shown, all movements at both intersections currently operate at LOS C or better. Growth in background traffic could add small amounts of delay to some movements by 2016, but all are expected to remain at LOS C or better. The following table reports LOS and delay for the overall intersections (considering all movements including those that are not required to stop) and for individual movements.

[7] WSDOT 2010 Annual Traffic Report, counts at MP 30.51 before Imperial Way, 2007, 2009, and 2010.
[8] City of Bremerton, June 2011.
[9] Transportation Research Board, April 2011.

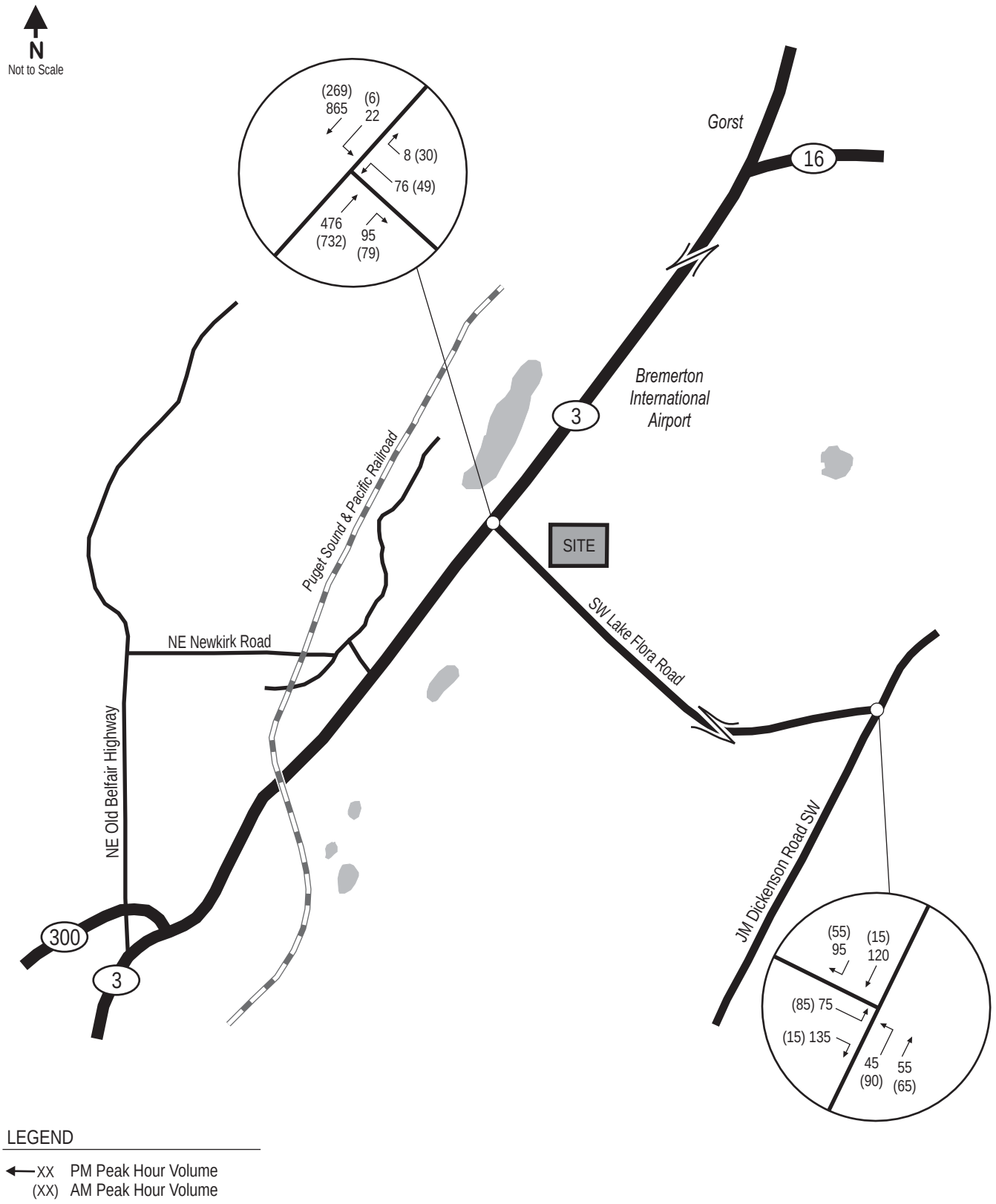


Figure 10

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EXISTING TRAFFIC VOLUMES
BREMERTON SITE

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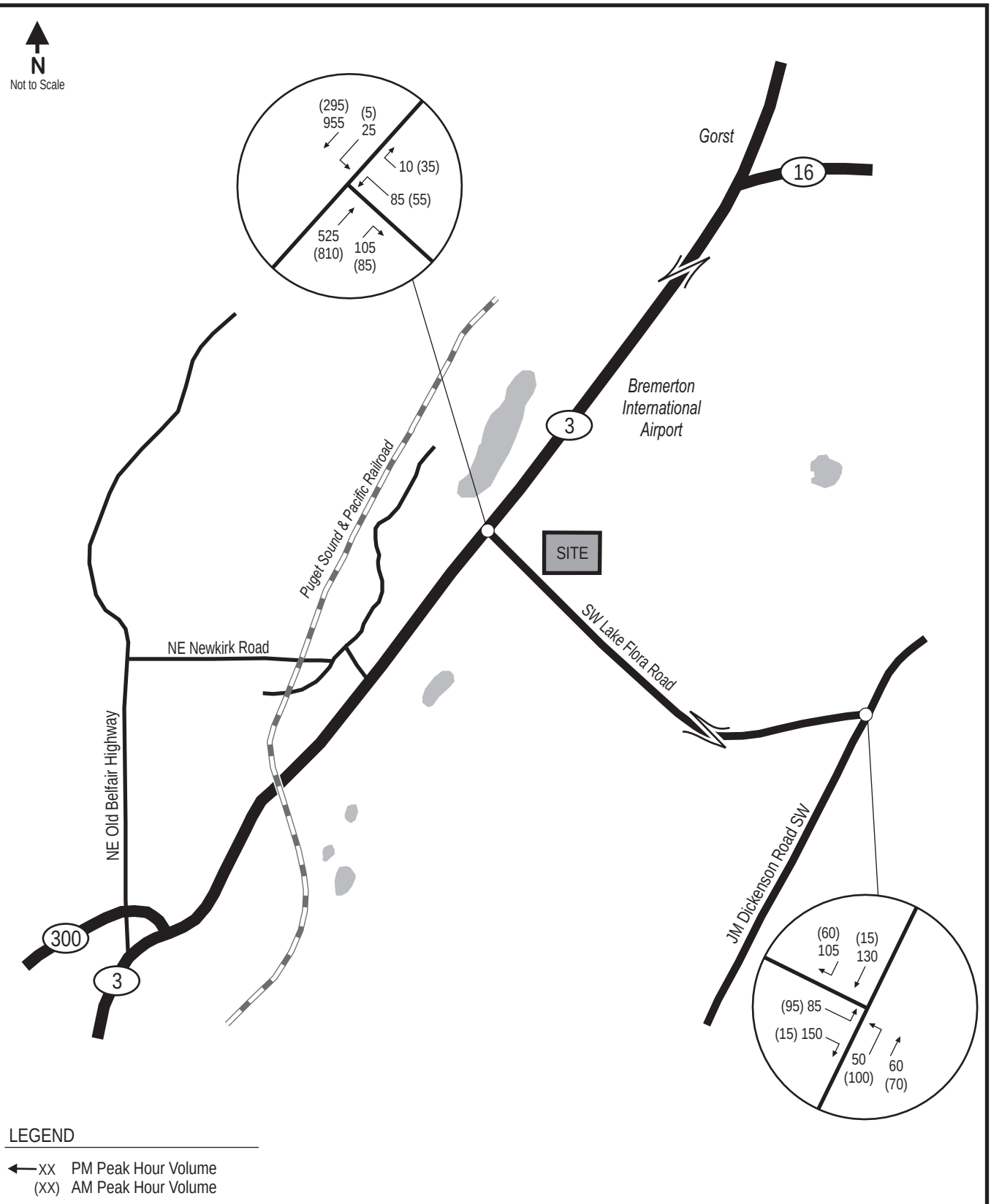

Department of Corrections
Westside Reception Center

Figure 11
2016 WITHOUT PROJECT
TRAFFIC VOLUMES
BREMERTON SITE

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Table 2. Level of Service Summary – Background Conditions – Bremerton Site

	AM Peak Hour Conditions				PM Peak Hour Conditions			
	Existing (2011)		2016 Without-Project		Existing (2011)		2016 Without-Project	
Stop-sign Controlled Intersections	LOS [1]	Delay [2]	LOS	Delay	LOS	Delay	LOS	Delay
SW Lake Flora Road / SR 3 (overall)	A	1.6	A	1.7	A	1.4	A	1.6
Turns from Lake Flora Road	C	18.4	C	19.9	C	19.7	C	22.4
Southbound Left Turns to Lake Flora Road	B	10.4	B	10.9	A	8.9	A	9.1
SW Lake Flora Rd / JM Dickenson Rd (overall)	A	5.7	n/a [3]		A	5.9	n/a [3]	
Eastbound Turns from Lake Flora Road	B	12.1			B	12.5		
Northbound Left Turns to Lake Flora Road	A	4.7			A	3.7		
Roundabout Controlled Intersection	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
SW Lake Flora Rd / JM Dickenson Rd (overall)	n/a [3]		A	5.3	n/a [3]		A	6.4
Eastbound approach on Lake Flora Road			A	4.4			A	7.2
Northbound approach on JM Dickenson Rd			A	6.1			A	5.2
Southbound approach on Lake Flora Road			A	4.8			A	6.1

Source: Heffron Transportation, August 2011.

1. *LOS = Level of service.*
2. *Delay = Average seconds of delay per vehicle.*
3. *n/a – Not applicable. Intersection is currently stop-sign controlled, but will be reconfigured as a roundabout in late 2011.*

Review of traffic volume signal warrants published in the *Manual on Uniform Traffic Control Devises* (*MUTCD*[10]) indicate that the SW Lake Flora Road/SR 3 intersection could meet minimum volume warrants for a traffic signal sometime before 2016 without the proposed reception center. However, WSDOT staff has reviewed the location for safety concerns and have determined that a traffic signal is not currently desirable at this location.[11] However, a signal or a roundabout could be considered at a future date if needed. If WSDOT elects to change traffic control at the intersection, it would likely operate at LOS A with a signal. If a change in traffic control is considered, WSDOT would also examine a roundabout for this location. However, due to peaking characteristics of traffic flows on SR 3, a roundabout is projected to operate at LOS D overall (southbound traffic would experience LOS E delay levels). Any changes to traffic control for the intersection would also be influenced by traffic safety conditions and collision experience.

2.1.4. Traffic Safety

Collision data at the study area intersections were obtained from WSDOT to determine if there are any traffic safety conditions that could affect or be affected by the reception center project. Data were obtained for the most recent three-year period, which spanned January 1, 2008 to December 31, 2010. Collision data for this period are summarized in Table 3. As shown, the largest number of collisions occurred at the SW Lake Flora Road/JM Dickenson Road intersection. Of the 11 total collisions, 9 involved a single-car striking an object (such as a fence, sign pole, tree/stump, etc.) or leaving the roadway and entering a ditch. Contributing causes ranged from disregarding a stop sign (6 collisions), exceeding safe speed (3 collisions), improper turn (1 collision), and driving under the influence of alcohol (1 collision). Eight of the collisions resulted in no injury; three listed an injury or possible

[10] *MUTCD 2009 Edition*, US Department of Transportation Federal Highway Administration, December 2009.
[11] Email communication, Dale Severson, P.E. Development Services Engineer, WSDOT Olympic Region, 8/18/2011.

injury. As described previously, Kitsap County is currently reconfiguring the intersection to operate as a roundabout. This project was initiated to address the safety concern and relatively high collision rate.

At the SW Lake Flora Road/SR 3 intersection, there were a total of 7 collisions; however, one was not intersection related and involved a driver that had apparently fallen asleep and struck a mailbox. Of the remaining six collisions, one involved a driver exceeding reasonable speed, one operating defective equipment, and two not granting right-of-way to the other vehicle. Three of the seven collisions resulted in no injury; four collisions were listed as possible injuries. WSDOT has identified a Collision Analysis Location (CAL) on SR 3 between Mile Post (MP) 28.78 and MP 29.30. According to WSDOT staff,[12] most of the collisions for this CAL are attributed to the SW Lake Flora Road intersection. In response, WSDOT has funded a project (scheduled for preliminary engineering in August 2011 and construction in July 2013) that would provide a northbound right-turn lane on SR 3 and would improve the center acceleration lane for turns from SW Lake Flora Road to southbound SR 3.

Table 3. Intersection Collision Summary – Bremerton Site

Intersection	Number of Collisions by Type								3-Year Total	Average/Year	Collisions/MEV [c]
	Head On	Rear End	Side-Swipe	Right Turn	Left Turn	Right Angle	Ped/Bicycle	Other			
SW Lake Flora Road / SR 3	0	0	0	0	0	6	0	1 [a]	7	2.3	0.35
SW Lake Flora Rd / JM Dickenson Rd	0	0	0	0	0	1	0	10 [b]	11	3.7	1.63

Source: WSDOT, August 2011.

a Collision was not intersection related and involved a vehicle striking a mailbox; contributing factor listed as driver apparently asleep.

b. Collisions involved vehicles striking objects (tree/stump, fence, sign pole, etc.) or leaving the roadway (into ditch). One of the collisions was not intersection related and one involved a vehicle striking a parked vehicle.

c. MEV = Million Entering Vehicles.

2.1.5. Transit

Transit service closest to the Bremerton site is provided by Mason County Transit. The closest transit stop is located at Bill Hunter Park in Belfair, approximately 2 miles from the site. Table 4 summarizes fixed-route bus service provided to and from this stop. As shown, four routes provide service between Belfair and Allyn, Grapeview, Union, Shelton, and Bremerton. In Shelton, connections can be made to Olympia (and routes provided by Intercity Transit, Grays Harbor Transit, and Pierce Transit), Brinnon (and routes provided by Jefferson Transit), and Bremerton (and routes provided by Kitsap Transit). Route 3 also provides direct connection to the Washington State Ferry dock in Bremerton. Direct connection to Squaxin Island Transit can also be made in Shelton. This service operates Monday through Friday on the reservation with connections to Mason Transit at the Kamilche Transit Center just off of US 101.[13]

[12] Email communication, Dale Severson, P.E. Development Services Engineer, WSDOT Olympic Region, 8/11/2011.
[13] Mason County Transportation Authority, July 2011. http://www.masontransit.org/tservices/schedules.html

Table 4. Existing Transit Service Summary – Bremerton Site

Route	Service Area	Stop Distance from Site (miles)[1]	Approximate Service Hours	Headways (time between buses)
1	Belfair, Allyn, Grapeview, Shelton	2	6:30 A.M. – 8:10 P.M.	65 – 305 minutes
2	Belfair, Union, Shelton	2	7:55 A.M. – 4:30 P.M.	145 – 220 minutes
3	Belfair, Bremerton – connects to Kitsap Transit and Washington State Ferry	2	5:30 A.M. – 7:10 P.M.	55 – 230 minutes
4	Local Belfair service	2	7:10 A.M. – 5:10 P.M.	50 – 60 minutes

Source: Mason County Transportation Authority, Fixed Route Schedules and Route Maps. July 2011.
http://www.masontransit.org/tservices/schedules.html

1. All routes accessed from Bill Hunter Park, located about 2 miles from the site.

No future planned transit improvements have been identified to occur in the site vicinity by 2016.

2.1.6. Non-Motorized Facilities

No sidewalks or dedicated bicycle facilities are provided on SW Lake Flora Road or on SR 3 in the vicinity of the site. However, SR 3 has shoulders that accommodate some non-motorized travel. About two-thirds of the segment of SW Lake Flora Road between SR 3 and JM Dickenson Road has paved asphalt shoulders on both sides that also could accommodate non-motorized travel. However, approximately one-third (immediately southeast of SR 3) has gravel shoulders that could accommodate pedestrians, but are not suited for bicyclists. As noted in Table 1, the *Kitsap County Bicycle Facilities Plan*[14] identifies a high-priority future 5-mile bike lane project beginning on SW Lake Flora Road at Sunnyslope Road SW, continuing on Glenwood Road SW to SW Lider Road, and continuing on SW Lider Road to Bethel-Burley Road. Bike lanes or a separated trail have been identified for SW Lake Flora Road west of Sunnyslope Road and SR 3 to the Mason County line as a low priority project. Neither project is currently reflected in any capital improvement programs. Kitsap County has also identified SW Lake Flora Road as Bike Route #20 in its countywide bike route map.[15] No future planned non-motorized improvements have been identified to occur in the site vicinity by 2016.

2.1.7. Parking

No on-street parking is provided on SW Lake Flora Road or on SR 3 in the vicinity of the site. Parking for existing development in the area is generally provided off-street.

2.2. Mason County Site

2.2.1. Transportation Network

Characteristics, such as street classification, speed limits, and traffic control, of the key roadways and intersections in the Mason County site vicinity are summarized in Table 5.

[14] Kitsap County, May 2001.
[15] Kitsap County, Department of Public Works, Transportation Planning, January 10, 2005.

Table 5. Summary of Study Area Roadway Characteristics – Mason County Site

Characteristic	SR 102 (W Dayton Airport Road)	US 101
Street Classification [1]	Minor Collector west of site; Local Access east of site	State Route – Highway of Statewide Significance [2]
Speed Limit (mph)	45	45
Lanes	2	2-3
Street-Edge Condition	Gravel and grass shoulder of varying width on both sides	Paved shoulder of varying width on both sides
Bike Lanes	None	None
Parking	None	None
Lane Restrictions	None	None
Transit Stops	None	None
Traffic Control & Signal Locations	Stop sign at US 101	No stop signs or traffic signals on the roadway; limited access north of Shelton; full-access control from Shelton to I-5

1. *Mason County Comprehensive Plan, Transportation Element, November 8, 2005.*
2. *Highways of Statewide Significance (HSS), designated under RCW 47.06.140, include interstate highways and other principal arterials that are needed to connect major communities in the state. http://www.wsdot.wa.gov/planning/HSS/Default.htm*

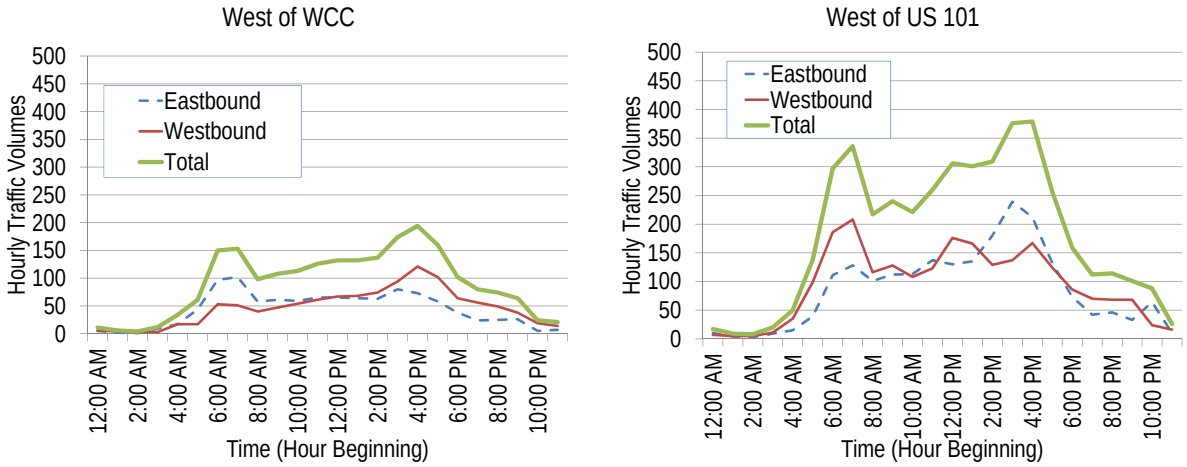
The *Mason County 2011-2016 Transportation Improvement Program (TIP)*[16] and *WSDOT 2011-2016 STIP*[17] were reviewed; no projects were identified in the study area through 2016.

2.2.2. Traffic Volumes

Seven-day machine traffic counts performed in April 2010 at two locations on SR 102—one just west of the Washington Corrections Center (WCC) main access driveway and one just west of US 101—were obtained from WSDOT. Figure 12 shows the average weekday hourly traffic volumes by direction on SR 102 at the two locations. The counts indicate that SR 102 carries an average of 2,170 vehicles per day just west of the WCC and 4,340 vehicles per day just west of US 101. The figure shows a directional traffic pattern on SR 102 in which peak eastbound flows (toward Shelton) occur in the morning and peak westbound flows (away from Shelton) occur in the afternoon. The highest volume on SR 102, a two-direction peak of about 379 vehicles per hour, occurred just west of US 101 between 4:00 and 5:00 P.M. Just west of the WCC, the two-direction peak of 190 vehicles peak hour also occurred from 4:00 to 5:00 P.M.

[16] Mason County, 2010. Adopted by the Mason County Commissioners under Resolution 86-10.
[17] WSDOT, 2011. http://www.wsdot.wa.gov/localprograms/ProgramMgmt/STIP.htm

Figure 12. Hourly Traffic Volumes on SR 102 in Mason County Site Vicinity

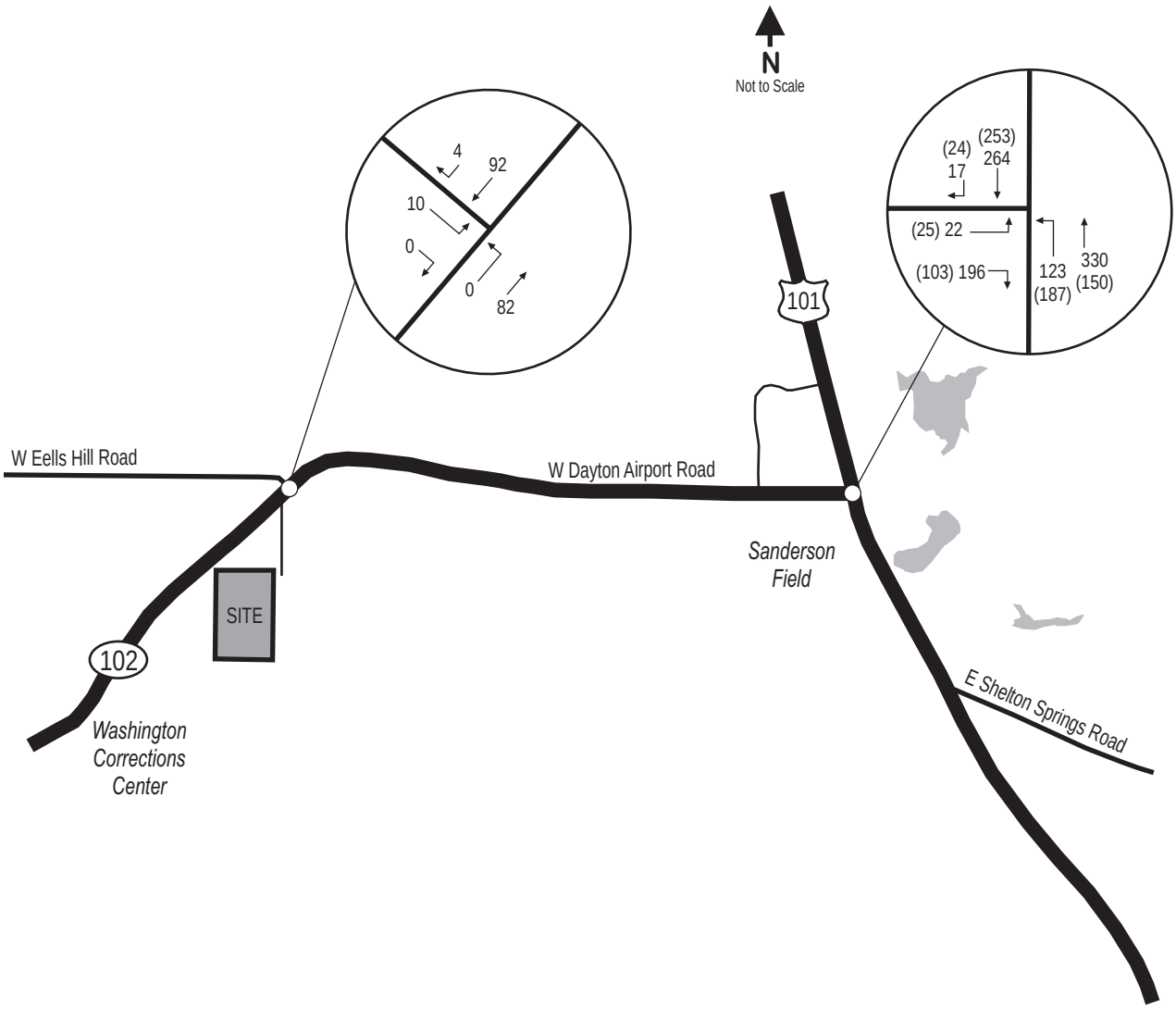


Source: WSDOT Seven-day counts, April 2010

AM peak period counts (from 7:00 to 9:00 A.M.) were conducted at the study intersection of SR 102 and US 101 on Wednesday, May 18, 2011. In addition, PM peak hour turning movement volumes at the SR 102/US 101 and SR 102/Eells Hill Road intersection, conducted in January 2011, were obtained from the *Ridge Motorsports Park Traffic Impact Study*.[18] Existing AM and PM peak hour traffic volumes at the Mason County study area intersections are shown on Figure 13.

The proposed reception center project is expected to be completed and occupied in 2016. Based on volumes published in WSDOT's *2010 Annual Traffic Report*, average daily traffic volume on SR 102 declined slightly near the WCC between 2008 and 2010. Near US 101, volumes on SR 102 increased by about 1.7% per year during this period. Based on coordination with Mason County transportation review staff, a 2% compound annual growth rate was applied to the existing traffic volumes to estimate year 2016 traffic volumes.[19] In addition, weekday peak hour traffic estimated to be generated by the Ridge Motorsports Park were added. The growth rate combined with development pipeline traffic provides a conservative estimate of year 2016 traffic conditions without the proposed reception center. Figure 14 shows 2016 without-project AM and PM peak hour traffic volumes at the Mason County study area intersections.

[18] Transportation Engineering Northwest, LLC, February 2011.
[19] Email communication, Brian Matthews, PE, Deputy Director/County Engineer, Mason County Public Works Department, July 28, 2011



LEGEND

XX PM Peak Hour Volume
(XX) AM Peak Hour Volume

Figure 13

Department of Corrections
Westside Reception Center

EXISTING TRAFFIC VOLUMES
MASON COUNTY SITE

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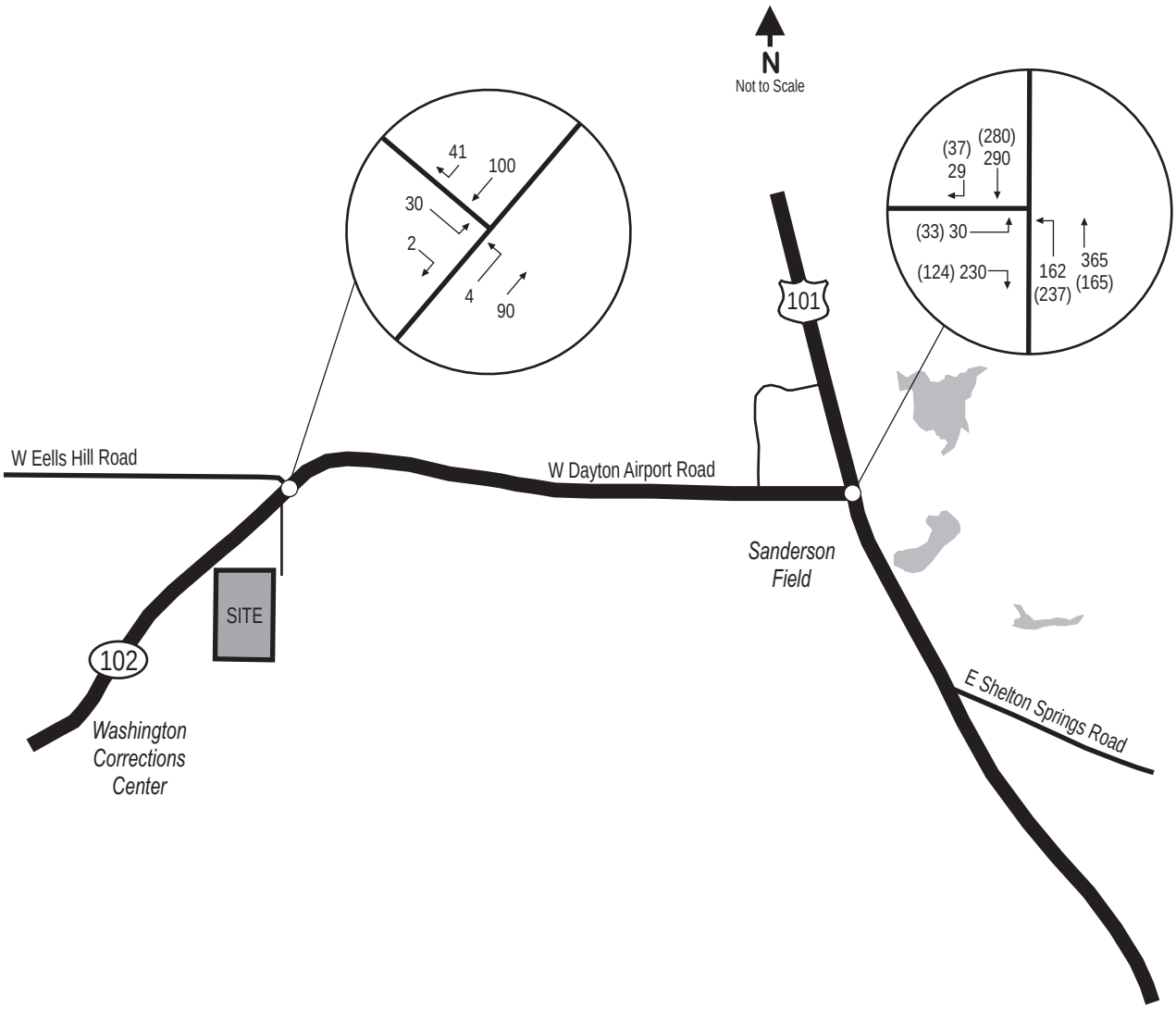

LEGEND

XX PM Peak Hour Volume
(XX) AM Peak Hour Volume

Department of Corrections
Westside Reception Center

Figure 14
2016 WITHOUT PROJECT
TRAFFIC VOLUMES
MASON COUNTY SITE

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09.01.2011

2.2.3. Intersection Operations

Level of service analyses were performed for the off-site study area intersections (see *Section 2.1.3* and Appendix A for a description of level of service methods). Table 6 summarizes existing and projected 2016 without-project levels of service of intersections within the Mason County study area. The following table reports LOS and delay for the overall intersections (considering all movements including those that are not required to stop) and for individual movements. As shown, all movements at both study area intersections currently operate at LOS B or better. In 2016, all movements are projected to operate at LOS C or better. The increase in traffic assumed results from background growth (2% annually) and the Ridge Motorsports Park would slightly increase delay and change the level of service for turns from SR 102 to US 101.

Table 6. Level of Service Summary – Background Conditions – Mason County Site

	AM Peak Hour Conditions				PM Peak Hour Conditions			
	Existing (2011)		2016 Without-Project		Existing (2011)		2016 Without-Project	
Unsignalized Intersections	LOS [1]	Delay [2]	LOS	Delay	LOS	Delay	LOS	Delay
SR 102 / US 101 (overall)	A	4.6	A	5.5	A	4.1	A	4.9
Turns from SR 102 to US 101	B	13.1	C	15.5	B	13.0	C	15.1
Northbound Left Turns from US 101	A	4.8	A	9.1	A	8.2	A	8.4
SR 102 / W Eells Hill Road (overall)	n/a [3]				A	0.7	A	1.7
Turns from Eells Hill Rd to SR 102					A	9.6	B	10.2
Left Turns from SR 102 to Eells Hill Rd					A	0.0	A	0.3

Source: Heffron Transportation, August 2011.

1. LOS = Level of service.

2. Delay = Average seconds of delay per vehicle.

3. Analyses were not required for AM peak hour conditions.

Review of traffic volume signal warrants published in the *MUTCD* indicate that the SR 102/US 101 intersection could meet minimum volume warrants for a traffic signal sometime before 2016 without the proposed reception center. However, WSDOT staff has reviewed the location for safety concerns and have determined that a traffic signal is not desirable at this location due to the character and location of the intersection. If WSDOT elects to signalize the intersection it would likely operate at LOS A. Any changes to traffic control for the intersection would also be influenced by traffic safety conditions and collision experience.

2.2.4. Traffic Safety

Collision data at the study area intersections were obtained from WSDOT to determine if there are any traffic safety conditions that could affect or be affected by the reception center project. Data were obtained for the most recent three-year period, which spanned January 1, 2008 to December 31, 2010. Collision data for this period are summarized in Table 7. As shown, the number of collisions over the study period was quite low. One of the collisions involved a driver under the influence of drugs, the other two (rear-end collisions) involved drivers following too closely—one on US 101 and one on SR 102. These data do not indicate any unusual safety conditions. WSDOT also indicated that there are

no CALs, Collision Analysis Corridors (CACs), or Intersection Analysis Locations (IALs) on SR 102 or on US 101 in the vicinity of its intersection with SR 102.[20]

Table 7. Intersection Collision Summary – Mason County Site

Intersection	Number of Collisions by Type								3-Year Total	Average/Year	Collisions/MEV [a]
	Head On	Rear End	Side-Swipe	Right Turn	Left Turn	Right Angle	Ped/Bicycle	Other			
SR 102 / US 101	0	2	0	0	0	1	0	0	3	1.0	0.25
SR 102 / W Eells Hill Road	0	0	0	0	0	0	0	0	0	0.0	0.00

Source: WSDOT, August 2011.

a. MEV = Million Entering Vehicles.

2.2.5. Transit

Transit service closest to the Mason County site is provided by Mason County Transit. Table 8 summarizes the eight fixed bus routes that serve Shelton. As shown, they provide local service within Shelton, and provide connections to Belfair, Allyn, Grapeview, Union, Olympia (connecting to routes provided by Intercity Transit, Grays Harbor Transit, and Pierce Transit), and Brinnon (connecting to routes provided by Jefferson Transit). Through an agreement between Mason County Transit and the DOC, a fixed route bus diverts from US 101 to serve the existing WCC at approximately 10:00 A.M. each weekday. If WCC staff anticipate that no pick-ups will be needed on a given day, they may call Mason County Transit and cancel the fixed route bus for that day. Mason County Transit also provides Dial-A-Ride service to the general public that is available on a first-come, first-served basis. Dial-A-Ride provides door-to-door transit service anywhere within the county; a two-hour notice is recommended to schedule a pick-up. This option is available to anyone who needs to travel to or from the WCC outside of the regular weekday mid-morning time.[21]

The closest published transit stop to the project site is located at Airport Grocery on E Shelton Springs Road, approximately 2 miles away. This serves as a scheduled stop for Route 7, which provides connections to the seven other routes in Shelton. Routes 2 and 8 also travel past this stop, and travelers waiting at this stop can flag down these buses when they go by. It should be noted that Mason County Transit allows individuals to flag down buses anywhere along a fixed route where the bus can safely stop, so it is also possible that Routes 2, 7, and 8 could be flagged down on US 101 closer to the project site at locations where it would be safe for a bus to pull over.

Direct connection to Squaxin Island Transit can also be made in Shelton. This service operates Monday through Friday on the reservation with connections to Mason Transit at the Kamilche Transit Center just off of US 101.[22] Mason County Transit and Intercity Transit[23] (in Thurston County) both provide vanpool services that are utilized by individuals who either live or work in Mason County.

[20] Email communication, Dale Severson, P.E. Development Services Engineer, WSDOT Olympic Region, 8/11/2011.
[21] Kathy Cook, Administrative Services Manager and Clerk to the Board, Mason County Transit, phone conversation with Jennifer Barnes, Heffron Transportation, regarding information about transit service provided in addition to published fixed route service, August 10, 2011.
[22] Mason County Transportation Authority, July 2011. http://www.masontransit.org/tservices/schedules.html

Table 8. Existing Transit Service Summary – Mason County Site

Route	Service Area	Stop Distance from Site (miles)	Approximate Service Hours	Headways (time between buses)
1	Belfair, Allyn, Grapeview, Shelton	[a]	6:30 A.M. – 8:10 P.M.	65 – 305 minutes
2	Belfair, Union, Shelton	[b,c]	7:55 A.M. – 4:30 P.M.	145 – 220 minutes
5	Local Shelton service	[a]	7:45 A.M. – 8:30 P.M.	60 minutes
6	Shelton, Olympia	[a]	5:45 A.M. – 8:40 P.M.	20 – 155 minutes
7	Local Shelton service	2[b,d]	7:40 A.M. – 8:30 P.M.	60 minutes
8	Shelton, Hoodsport, Liliwaup, Eldon, Brinnon	[b,c]	8:05 A.M. – 10:05 A.M. 2:00 P.M. – 4:05 P.M.	Two runs per day, one in the morning and one in afternoon
9	Local Shelton service	[a]	11:40 A.M. – 8:40 P.M.	120 – 240 minutes
10	Local Shelton service	[a]	12:50 P.M. – 4:50 P.M.	60 minutes

Source: Mason County Transportation Authority, Fixed Route Schedules and Route Maps. July 2011.
http://www.masontransit.org/tservices/schedules.html

a. Individuals traveling to or from the project site may connect to this route via Route 2, 7, or 8.

b. Route travels along US 101 and currently can divert to the existing WCC under an agreement with the DOC.

c. May be flagged down from the stop at the Airport Grocery, which is the closest published stop to the project site.

d. Has scheduled stop at the Airport Grocery, which is the closest published stop to the project site.

No future planned transit improvements have been identified to occur by 2016.

2.2.6. Non-Motorized Facilities

No sidewalks or dedicated bicycle facilities are provided on SR 102 (W Dayton Airport Road) or US 101 in the vicinity of the site. There are unpaved shoulders along SR 102 that could accommodate pedestrian traffic, but are not suitable for bicycle travel. US 101 has paved shoulders that could potentially accommodate non-motorized travel.

The *Mason County Regional Trails Plan*[24] identifies SR 102 between US 101 and Shelton-Matlock Road as a "short-term priority bikeway," for which the County has defined an objective of building a bikeway within 1 to 5 years of the year that the plan was adopted (2008). The plan indicates that instead of specific improvement recommendations for particular roads, that standard planning and design procedures should be utilized in conjunction with road improvement projects to determine whether added improvements for bicycling are appropriate for a given situation.

No funded non-motorized improvements have been identified to occur in the site vicinity by 2016.

2.2.7. Parking

No on-street parking is provided on SR 102 (W Dayton Airport Road) in the vicinity of the site. Parking for existing development in the area is provided off-street.

[23] Intercity Transit, Vanpool and Carpool information, August 2011. http://www.intercitytransit.com/traveloptions/vanpoolandcarpool/Pages/default.aspx

[24] Mason County Regional Trails Plan, prepared by the Mason County Departments of Parks and Trails, Community Development, Public Works, and Regional Trails Committee, March 2008.

2.3. Thurston County Site

2.3.1. Transportation Network

Characteristics, such as street classification, speed limits, traffic control and others, of the key roadways and intersections in the Thurston County site vicinity are summarized in Table 9.

Table 9. Summary of Study Area Roadway Characteristics – Thurston County

Characteristic	Old Hwy 9 SW	Old Hwy 99 SW	US 12	Elderberry St SW	Carper Rd SW
Street Classification [1]	Major Collector	Arterial	State Route – Highway of Statewide Significance [2]	Arterial, south of 196th St SW; Major Collector, north of 196th St SW	Local Access
Speed Limit (mph)	50	40	55	35 [3]	30
Lanes	2	3-4	2-3	2-3	2
Street-Edge Condition	No curb, gutter, sidewalk or shoulder	Shoulder on both sides; some intermittent sidewalk fronting development	Shoulder on both sides	Shoulder on both sides	No curb, gutter, sidewalk or shoulder
Bike Lanes	None	None [4]	None [4]	None	None
Parking	None	None	None	None	None
Lane Restrictions	None	None	None	None	None
Transit Stops	None	None	None	None	None
Traffic Control & Signal Locations	Traffic signal at Old Hwy 99 SW; stop sign at US 12	Traffic signal at US 12	Traffic signal at Old Hwy 99/ Elderberry and I-5 NB ramps	Traffic signal at US 12	Stop sign at Old Hwy 9 SW

1. *Grand Mound Subarea Plan for the Grand Mound Urban Growth Area, Map 7, Thurston County Development Services, July 1, 1996.*
2. *Highways of Statewide Significance (HSS), designated under RCW 47.06.140, include interstate highways and other principal arterials that are needed to connect major communities in the state. http://www.wsdot.wa.gov/planning/HSS/Default.htm*
3. *Speed limit not posted in this segment and not listed on the County's Speed Limit Schedule (June 8, 2010). Assumed to be 35 mph similar to northern segment.*
4. *Thurston Regional Planning Council (TRPC), 2011. Although no bicycle facilities are present, the TRPC County Bike Map identifies Old Highway 99 SW and US 12 as having wide enough shoulders to accommodate bicycle travel. http://www.trpcmaps.org/webmaps/bikemap/gbikemap.htm*

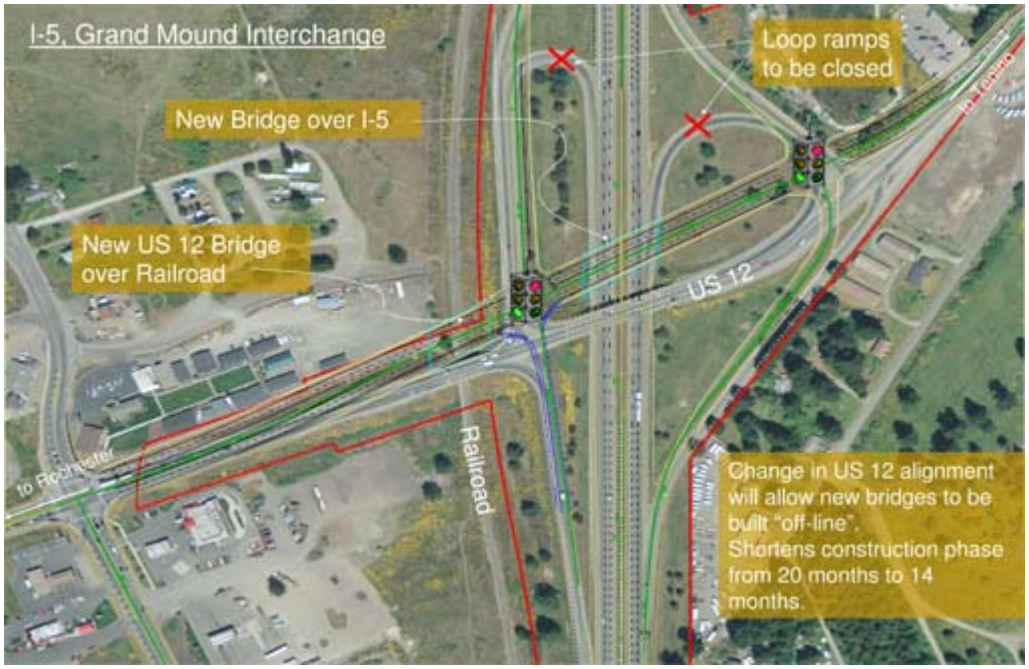
The *Thurston County 2011-2016 Transportation Improvement Program (TIP)*[25] and *WSDOT 2011-2016 STIP*[26] were reviewed to determine if any planned improvement projects would affect study area intersections. Within the project study area, there is one major transportation improvement project currently under construction. WSDOT is currently constructing the *I-5 - Grand Mound to Maytown Stage Two Interchange Replacement Project*. The project will replace this existing interchange to improve mobility and safety. The changes are illustrated on Figure 15.

As shown, the interchange configuration will be modified and both loop ramps will be eliminated. Traffic signals will be installed at both ramp intersections resulting in a typical "diamond" interchange

[25] Thurston County, 2010.
[26] WSDOT, 2011. http://www.wsdot.wa.gov/localprograms/ProgramMgmt/STIP.htm

configuration. On the east side of the interchange, the two existing exits from northbound I-5 will be consolidated to one exit point. The alignment of the US 12 roadway across the interchange will be shifted to the north. The US 12 intersection with Old Highway 99/Elderberry Road will be reconfigured to provide dual westbound-to-southbound left-turn pockets. The segment of US 12 east of Old Highway 99/Elderberry Road will be widened to six lanes. According to WSDOT staff, the project will be complete by July 2012.[27] Based on guidance from WSDOT staff, the improvements to the US 12/Old Highway 99/Elderberry Road intersection were included for all future analyses conditions.

Figure 15. Grand Mound Interchange Replacement and Reconfiguration



Source: WSDOT, http://www.wsdot.wa.gov/Projects/I5/GrandMoundStage2/Realignment.htm, August 2011

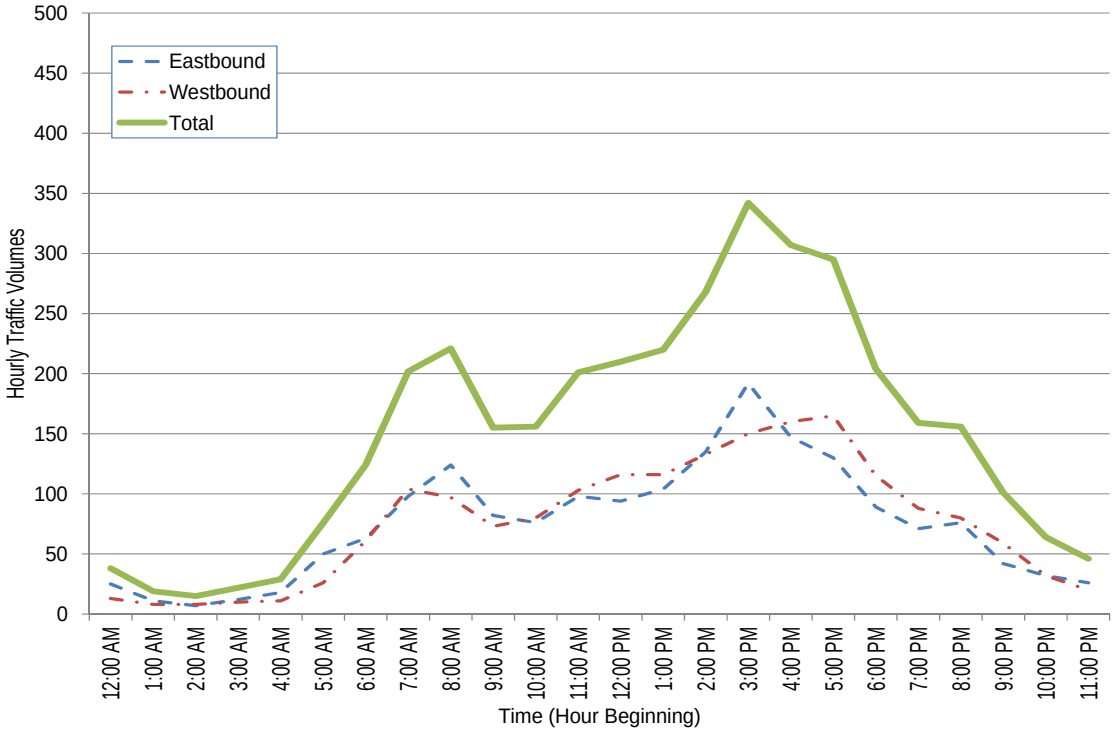
Thurston County also has plans to widen Old Highway 99 to five lanes from US 12 to the Grand Mound south Urban Growth Area (UGA) boundary. There are also plans for intersection improvements and new signals on US 12 between Old Highway 99 and Old Highway 9. Although the County is currently collecting traffic impact fees for these projects, they are not expected to be constructed by 2016. Therefore, per the direction of Thurston County staff, with the exception of the improvements planned at the US 12 intersection with Old Highway 99/Elderberry Road, existing roadway geometry and traffic control were assumed for future analyses at all other study area intersections.

2.3.2. Traffic Volumes

Seven-day machine traffic counts were conducted on Old Highway 9 SW near the site in May 2011. Figure 16 shows the average weekday hourly traffic volumes by direction on Old Highway 9, which carries an average of 3,630 vehicles per day. The figure shows that the peak flows in both the eastbound and westbound directions occur in the afternoon. The highest volume on Old Highway 9, a two-direction peak of about 340 vehicles per hour, occurred between 3:00 and 4:00 P.M.

[27] WSDOT Tumwater Project Office, Asst. Project Engineer, Tom Whitney, August 2011.

Figure 16. Hourly Traffic Volumes on Old Highway 9 in Thurston County Site Vicinity



Source: All Traffic Data, May 2011.

New AM peak period (from 7:00 to 9:00 A.M.) and extended PM peak period (from 2:00 to 6:00 P.M.) counts were conducted at the study area intersections on Wednesday, May 18, 2011. Existing AM and PM peak hour traffic volumes at the Thurston County study area intersection are shown on

Figure 17. As the Maple Lane School was located on the Thurston County site until it was recently closed in June 2011, existing traffic volume counts included some trips generated by this facility. The effect of the Maple Lane School closure on project site trip generation projections is discussed in detail in *Section 3.3.2* of this report.

As directed by Thurston County Transportation review staff, future traffic forecasts were developed using an overall annual growth rate combined with the addition of specific traffic estimates from planned developments (also known as pipeline development traffic). The annual growth for the project study area was determined with assistance from the Thurston Regional Planning Council.[28] Projected annual traffic growth rates were calculated by comparing PM peak hour volumes from the regional travel demand model developed as part of the Olympia Concurrency project. The 2015 forecasts were compared to the 2009 base-year volumes. Within the project study area, this comparison showed that traffic volumes are projected to increase by between 0.8% and 2.2% annually. Based on these results, the highest expected growth rate of 2.2% per year was selected and applied to the existing traffic counts performed in 2011.

[28] Bharath Paladugu, Transportation Modeler, Thurston Regional Planning Council, August 2011.

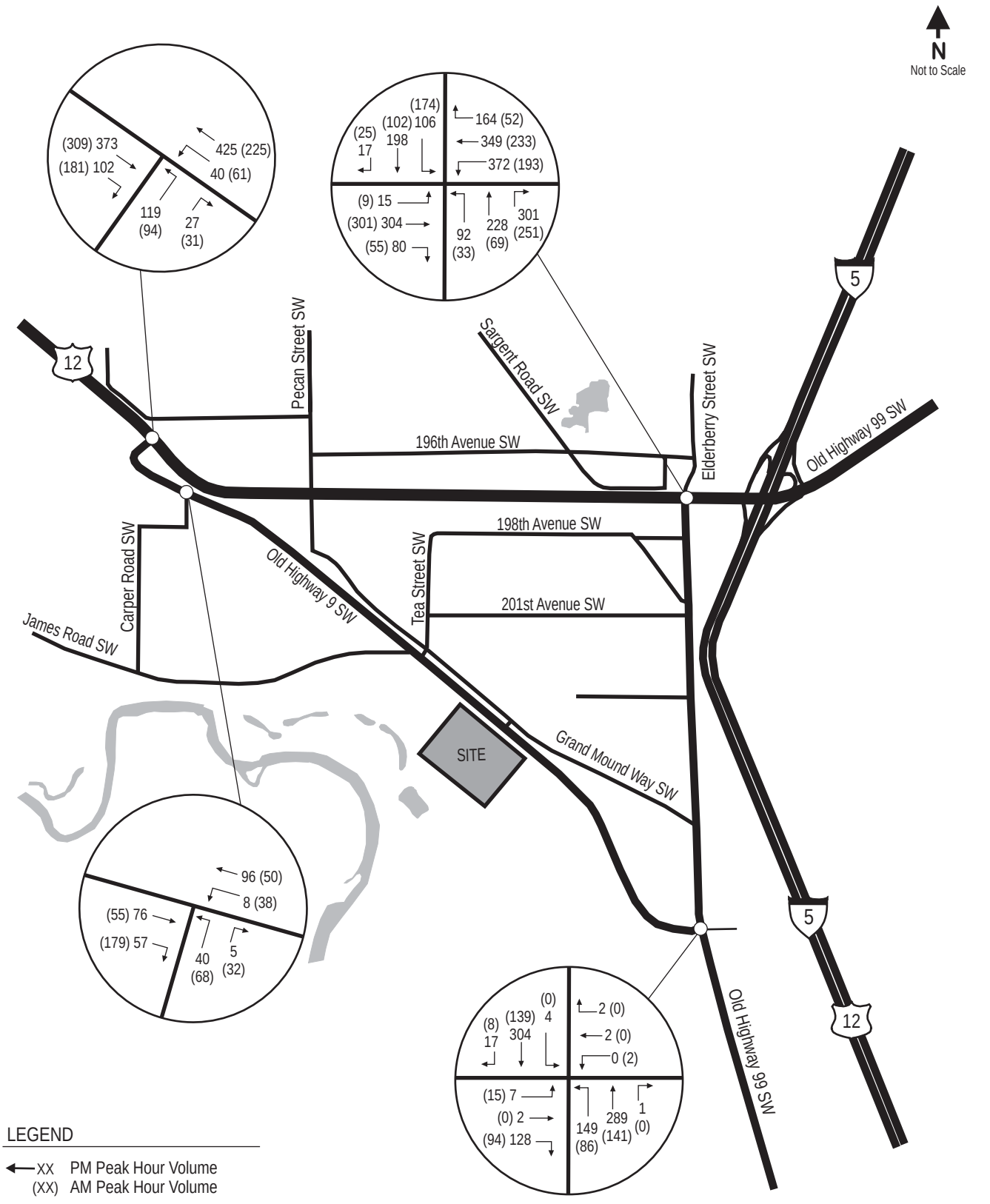


Figure 17

Department of Corrections
Westside Reception Center

EXISTING TRAFFIC VOLUMES
THURSTON COUNTY SITE

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In addition to application of the annual growth rate, Thurston County staff requested inclusion of traffic from two planned development projects that would add traffic to study area intersections. Traffic estimates prepared for the following two proposed developments were obtained from the traffic analyses prepared for each and were added to the 2016 background traffic forecasts.

- Grand Mound Retail Development[29] – planned at a site on the east side of Old Highway 99 south of US 12.
- Stoskopf Commercial Development[30] – planned at 19748 Elderberry Street SW.

Since neither of the reports prepared for these developments included morning traffic analysis, AM peak hour trip generation for both projects was developed by Heffron Transportation using rates published in ITE's *Trip Generation.* AM peak hour trip estimates were assigned using the same distribution patterns provided for the PM peak hour analyses. Figure 18 shows the resulting 2016 without-project AM and PM peak hour traffic volume forecasts for the Thurston County study area intersections.

2.3.3. Intersection Operations

Level of service analyses were performed for the off-site study area intersections (see *Section 2.1.3* and Appendix A for a description of level of service methods). Table 10 summarizes existing and projected 2016 without-project levels of service of intersections within the Thurston County study area. For unsignalized intersections, the following table reports LOS and delay for the overall intersections (considering all movements including those that are not required to stop) and for individual movements. As shown, the signalized Old Highway 99/US 12/Elderberry Street SW intersection currently operates at LOS D during both the morning and afternoon peak hours. The planned improvements currently under construction as part of the WSDOT Grand Mound Interchange Replacement project would provide additional capacity to accommodate growth in background traffic and other planned developments. The intersection is expected to continue operating at LOS D in 2016 during the morning and afternoon peak hours.

As shown, all three unsignalized intersections are projected to operate at LOS A overall during morning and afternoon peak hours. Note that the overall results reflect LOS and delay averaged for all movements, including those that are not required to stop. Nearly all movements at these unsignalized intersections would also operate at LOS C or better during peak hour. The one exception is the eastbound-to-northbound left turn from Old Highway 9 to Old Highway 99. This turn currently operates at LOS D in the afternoon and is projected to degrade to LOS E by 2016 due to growth in background traffic volumes. However, it should be noted that the combined eastbound approach (left- and right-turn movements) would continue to operate at LOS C with an average delay of 15.1 seconds per vehicle.

Review of traffic volume signal warrants published in the *MUTCD* indicate that the Old Highway 9/US 12 intersection could meet minimum volume warrants for a traffic signal sometime before 2016 without the proposed reception center. However, WSDOT staff has reviewed the location for safety concerns and have determined that a traffic signal is not desirable at this location due to the character and location of the intersection.[31] If WSDOT elects to signalize the intersection it would likely operate at LOS A. Any changes to traffic control for the intersection would also be influenced by traffic safety conditions and collision experience.

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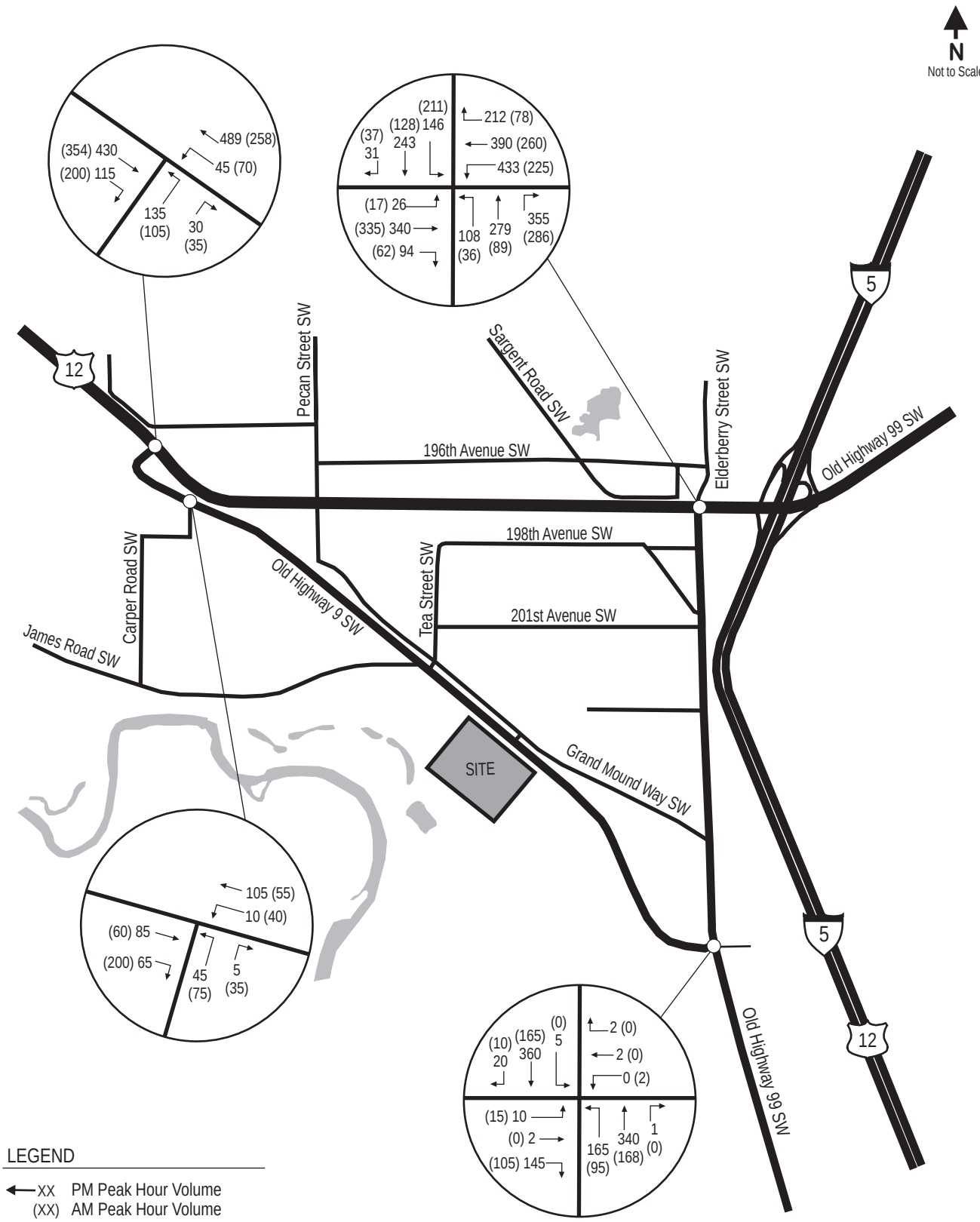
[29] *Grand Mound Retail Trip Generation, Distribution, Traffic Impact Fee and Traffic Scoping Letter,* Jake Traffic Engineering, Inc., May 6, 2011.
[30] *Level 1 Grand Mound Traffic Analysis – Stoskopf Commercial Development,* Skillings Connolly, November 2009.
[31] Email communication, Dale Severson, P.E. Development Services Engineer, WSDOT Olympic Region, 8/18/2011.



Department of Corrections
Westside Reception Center

Figure 18
2016 WITHOUT PROJECT
TRAFFIC VOLUMES
THURSTON COUNTY SITE

heffron transportation, inc.

09.01.2011

Table 10. Level of Service Summary – Background Conditions – Thurston County Site

	AM Peak Hour Conditions				PM Peak Hour Conditions			
	Existing (2011)		2016 Without-Project		Existing (2011)		2016 Without-Project	
Signalized Intersection	LOS [1]	Delay [2]	LOS	Delay	LOS	Delay	LOS	Delay
Old Hwy 99 SW / US 12 / Elderberry Street SW	D	40.8	D	41.5	D	38.9	D	39.8
Unsignalized Intersections	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Old Hwy 9 SW / Carper Road SW (overall)	A	4.4	A	4.7	A	2.4	A	2.5
WB Lefts from Old Hwy 9 to Carper Rd	A	3.8	A	3.8	A	0.6	A	0.7
NB turns from Carper Rd to Old Hwy 9	B	14.3	C	15.6	B	10.5	B	10.8
Old Hwy 9 SW / US 12 (overall)	A	3.3	A	3.7	A	2.5	A	2.9
WB Lefts from US 12 to Old Hwy 9	A	9.3	A	9.8	A	8.7	A	9.1
NB turns from Old Hwy 9 to US 12	B	14.4	C	16.9	C	15.9	C	19.2
Old Hwy 9 SW / Old Hwy 99 SW (overall)	A	3.9	A	3.9	A	3.4	A	3.7
EB Lefts from Old Hwy 9 to Old Hwy 99	B	14.6	B	16.2	D	30.2	E	41.4
EB Rights from Old Hwy 9 to Old Hwy 99	B	10.1	B	10.5	B	12.1	B	13.3
WB Turns from Private Dwy to Old Hwy 99	C	17.5	C	20.3	C	18.9	C	22.9
NB Left Turns from Old Hwy 99 to Old Hwy 9	A	7.9	A	8.0	A	8.6	A	9.0
SB Left Turns from Old Hwy 99 to Pvt. Dwy.	A	0.0	A	0.0	A	8.0	A	8.2

Source: Heffron Transportation, August 2011.

1. LOS = Level of service.

2. Delay = Average seconds of delay per vehicle.

2.3.4. Traffic Safety

Collision data at the study area intersections were obtained from WSDOT to determine if there are any traffic safety conditions that could affect or be affected by the reception center project. Data were obtained for the most recent three-year period available, which spanned January 1, 2008 to December 31, 2010. Collision data for this period are summarized in Table 11. As shown, the largest number of collisions occurred at the Old Highway 99/US 12/Elderberry Road SW intersection. During the three-year period, there was an average of 6.3 collisions per year. Of the 19 reported collisions, 3 were listed as "not intersection related." Most were rear-end collisions with contributing causes listed as exceeding reasonable speed, following too closely, or inattention. One of the angle collisions involved a driver under the influence of alcohol. The number and rate of collisions at this intersection are not unusual for a high-volume signalized intersection. In addition, the collision rate is relatively low (0.62/MEV) and reflects the volume of traffic the intersection serves on a daily basis.

WSDOT indicated that the Old Highway 9/US 12 intersection (MP 44.66) is not within a CAL, CAC, or IAL. However, there was an entering-at-angle collision that resulted in a fatality at this intersection in May 2010. This angle collision involved a vehicle turning left from Old Highway 9 to US 12 and being struck by a vehicle traveling through the intersection southeast bound. WSDOT staff also noted

that between Oakville and Grand Mound, there is a CAC (MP 35.30 to MP 40.30) and 2 IALs (MP 39.85 Moon Road and MP 45.20 Pecan Street). In the past five years (2006 to 2010), there have been four fatal collisions that were intersection related on US 12 between Grand Mound and Oakville.[32]

Table 11. Intersection Collision Summary – Thurston County Site

Intersection	Number of Collisions by Type								3-Year Total	Average/Year	Collisions/MEV [c]
	Head On	Rear End	Side-Swipe	Right Turn	Left Turn	Right Angle	Ped/Bicycle	Other			
Old Hwy 99 SW / US 12 / Elderberry St SW	0	12	2	0	0	4	0	1	19	6.3	0.62
Old Hwy 9 SW / Carper Road SW)	0	1	0	0	0	1	0	0	2	0.7	0.52
Old Hwy 9 SW / US 12	0	0	0	0	0	3 [a]	0	1 [b]	4	1.3	0.27
Old Hwy 9 SW / Old Hwy 99 SW	0	1	0	0	0	2	0	0	3	1.0	0.24

Source: WSDOT, August 2011.

a One right angle collision resulted in a fatality on May 1, 2010.

b. Collision involved a single vehicle striking a guardrail; contributing cause described as exceeding stated speed limit.

c. MEV = Million Entering Vehicles.

2.3.5. Transit

Transit service closest to the Thurston County site is provided by Twin Transit. The closest transit stop is located at the Great Wolf Lodge in Grand Mound, approximately 1 mile from the site. This stop directly serves Route 41, which provides connections to five other routes in Centralia and Chehalis. Table 12 summarizes the six fixed bus routes. In addition to providing local service in Centralia and Chehalis, connection is provided to the Greyhound bus service and Amtrak rail service in Centralia. The Amtrak station also serves as a transfer point for the fixed bus routes, as all routes travel there once per hour during the times they are in service. No future planned transit improvements have been identified to occur by 2016.

Table 12. Existing Transit Service Summary – Thurston County Site

Route	Service Area	Stop Distance from Site (miles)	Approximate Service Hours	Headways (time between buses)
12	Chehalis and Chehalis Port	[a]	5:00 A.M. – 6:00 P.M.	60 minutes
21	Centralia north and south	[a]	6:00 A.M. – 7:30 P.M.	60 minutes
22	West Centralia, Port of Centralia	[a]	6:00 A.M. – 7:30 P.M.	60 minutes
30	Centralia, Chehalis	[a]	6:00 A.M. – 7:30 P.M.	60 minutes
41	Grand Mound, Centralia	1	10:30 A.M. – 5:30 P.M.	60 minutes
42	Centralia, Chehalis	[a]	10:00 A.M. – 5:00 P.M.	60 minutes

Source: Twin Transit System Map and Schedule, September 2010.

a. Connect to route via Route 41.

[32] Email communication, Dale Severson, P.E. Development Services Engineer, WSDOT Olympic Region, 8/11/2011.

2.3.6. Non-Motorized Facilities

No sidewalks, shoulders, or dedicated bicycle facilities are provided on Old Highway 9 SW in the vicinity of the site; while pedestrians could potentially walk along the unpaved right-of-way adjacent to the road, it is not suited for bicycle travel. Although no designated bicycle facilities are present, the *TRPC County Bike Map* identifies Old Highway 99 SW and US 12 as having paved shoulders wider than 4 feet.[33] No future planned non-motorized improvements have been identified to occur in the site vicinity by 2016.

2.3.7. Parking

No on-street parking is provided on Old Highway 9 SW in the vicinity of the site. Parking for existing development in the area is provided off-street.

[33] Thurston County Planning Council, 2011. http://www.trpcmaps.org/webmaps/bikemap/gbikemap.htm

3. IMPACTS

This chapter describes the conditions that are expected to exist at each of the alternative sites with the proposed Westside Prison Reception Center. Each section describes the methodology and assumptions used to determine project trip generation for each site and the transportation impacts of the proposed facility on the surrounding transportation network.

3.1. Bremerton Site Alternative

3.1.1. Roadway Network

The project proposes to construct one site access driveway on SW Lake Flora Road; no off-site road modifications are proposed.

3.1.2. Traffic Volumes

Construction of the reception center on the Bremerton site would affect traffic volumes in the transportation study area. Because the site is currently undeveloped, there are no existing trips generated at the site that would be removed if the project is built at this location.

The following sections describe the assumptions used to estimate the site-generated trips, the distribution and assignment of those trips through the study area intersections, and the resulting 2016 with-project traffic volumes at the study area intersections.

Trip Generation

Trip generation for new development projects is typically determined using national studies of similar types of facilities published in *Trip Generation* by the Institute of Transportation Engineers (ITE).[34] *Trip Generation* provides average trip rates for a prison (Land Use Code 571); however, it does not provide rates for a facility similar to the proposed reception center. Similarly, the *Journal of Urban Planning and Development*[35] provides a trip generation study of five regional jails and one federal correctional facility located in West Virginia. Although this publication provides weighted-average trip generation rates based on the number of beds and on the number of employees, the facilities studied are also not representative of the proposed reception center.

ITE recommends in its *Trip Generation Handbook,*[36] "If the description of a site is not covered by the land use classifications presented in *Trip Generation,* the analysis should collect local data and establish a local rate." As described above in the Project Description section, a reception center is different in several ways from a jail or prison. In addition, based on Heffron Transportation's past experience with other corrections facilities, trip generation and parking demand are substantially influenced by operational characteristics, such as employee shift times and staffing, visitor policies, and transport needs. As a result, this facility is expected to have different trip characteristics than a typical jail or prison. Therefore, project-specific information was collected from the DOC to develop

[34] Institute of Transportation Engineers, 8th Edition, 2008.
[35] March 2000 issue.
[36] Institute of Transportation Engineers, 2nd Edition, June 2004.

trip generation estimates for the reception center. This information is summarized in the technical memorandum *DOC Westside Prison Reception Center: Trip Generation Assumptions*.[37] The trip generation assumptions were reviewed and approved by the DOC and are provided in Appendix B.

The program and operational information provided by the DOC was compiled into a detailed spreadsheet model to estimate trips generated by employees, transports, releases, visitors, deliveries, volunteers, and other uses. These account for all of the vehicle trips expected to be generated by the proposed reception center. It should be noted that because the Bremerton alternative site has no nearby transit stops, it was assumed that no trips generated by the site would occur by transit. Table 13 summarizes vehicle trips that are projected to result from the proposed reception center if it is located at the Bremerton site. As shown, the project is expected to result in 994 daily vehicle trips, with 149 trips occurring in the AM peak hour (6:30 to 7:30 A.M.) and 149 trips occurring in the PM peak hour (5:00 to 6:00 P.M.). Because the majority of peak hour trips would be employee-generated, most are inbound during the AM peak hour and outbound during the PM peak hour.

Table 13. Net Increase in Trip Generation – Bremerton Site

Trip Type	Daily Trips	AM Peak Hour Trips [1]			PM Peak Hour Trips [2]		
		In	Out	Total	In	Out	Total
Employees [3]	830	140	0	140	0	140	140
Transports	24	1	2	3	0	0	0
Releases	10	1	0	1	0	0	0
Visitors	60	0	0	0	0	0	0
Volunteers	20	1	0	1	6	1	7
Deliveries	20	1	1	2	0	0	0
Other	30	1	1	2	1	1	2
Total Trips	994	145	4	149	7	142	149

Source: Heffron Transportation, Inc., July 2011.

1. *AM peak hour trips generated by the Westside Prison Reception Center are estimated to occur between 6:30 and 7:30 A.M.*
2. *PM peak hour trips generated by the Westside Prison Reception Center are estimated to occur between 5:00 and 6:00 P.M.*
3. *AM and PM peak hour employee trips would be generated by non-custody administrative and health services staff members who work from 7:00 A.M. to 5:00 P.M. The facility would also employ custody and nursing staff who work 24/7 in three shifts. Employee-generated trips that would occur at shift changes would occur outside of the AM and PM peak hours.*

Trip Distribution

The trip distribution patterns for each of the alternative project sites were developed by Heffron Transportation according to accepted practice as outlined by the Institute of Transportation Engineers. ITE's *Traffic Access and Impact Studies for Site Development – A Recommended Practice*[38] notes that the directions from which traffic will access the site can vary depending on many factors, including:

- Type of proposed development and area from which it will attract traffic,
- Size of the proposed development,
- Surrounding land uses and population, and
- Conditions on the surrounding street system.

[37] Heffron Transportation, Inc., July 18, 2011.
[38] ITE, 2005.

ITE outlines that the three most commonly acceptable methods for estimating trip distribution are by model, by analogy, and by surrogate data. A trip distribution model can be used in cases when the proposed use is expected to have travel patterns that are easily modeled. For a gravity model, this is based on the likelihood that the number of trips between zones in the model is proportional to the magnitude of each zone and inversely proportional to the distance between the zones. For common developments (such as residential, office, or retail), the computer models typically provide reasonable results. However, for uncommon developments such as the proposed reception center, the methods by analogy and surrogate data provide more precise results. The analogy method relies on data collected at or near a project site such as turning movement counts and local traffic patterns. The surrogate data method uses information such as demographics, population, or employees' address (or zip codes) to develop distribution patterns. A combination of both surrogate data and analogy was applied to determine the distribution patterns for the trips that would be generated by the proposed reception center at each of the alternative sites.

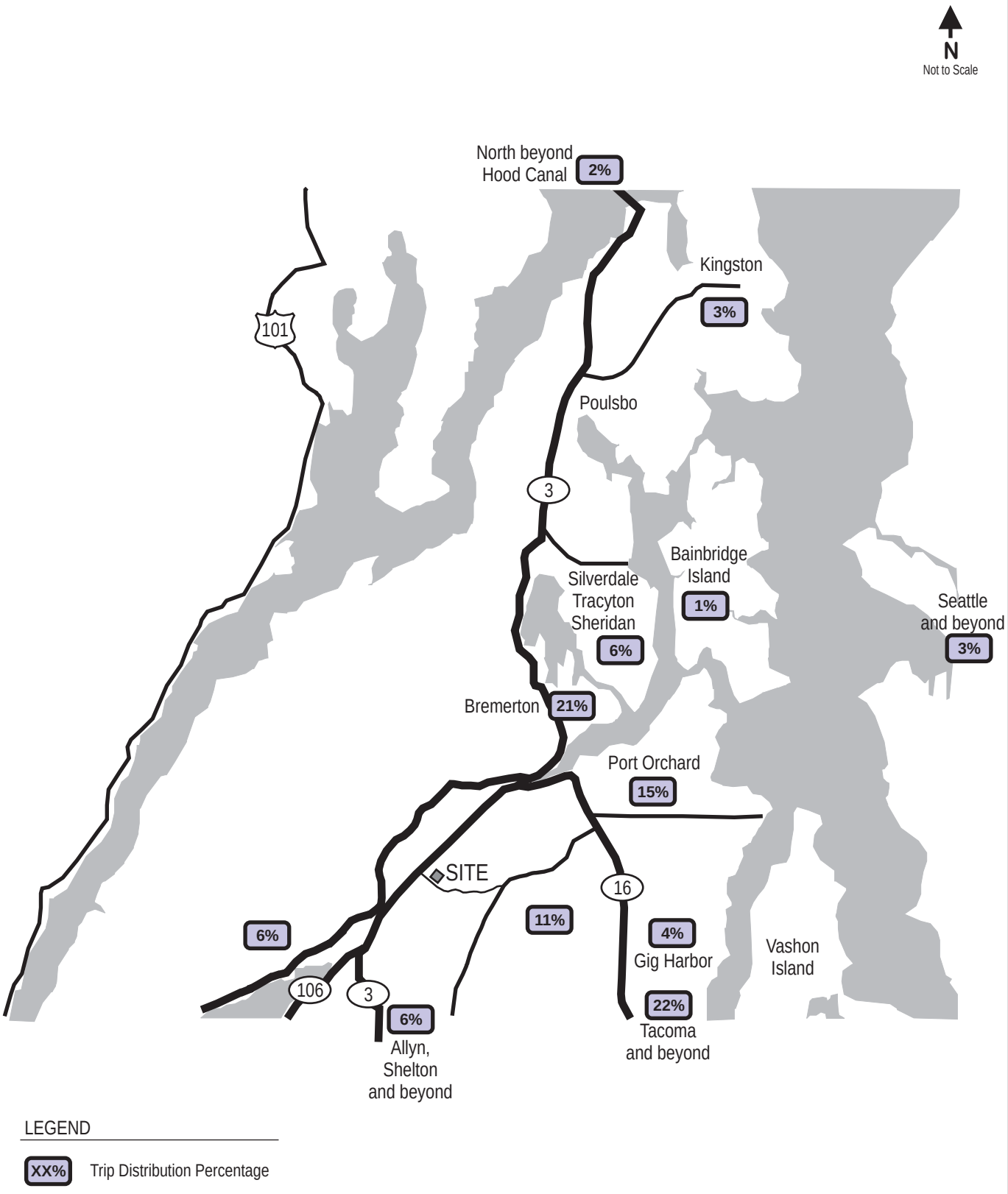
Because the majority of peak hour reception center trips would be employee-generated, the overall trip distribution was based on employee distribution at an existing comparable facility. The distribution of employee trips throughout the region was estimated using zip code data for employees at the existing WCC in Mason County. These data are appropriate for estimating reception center employee trip distribution patterns because the type of employee would be similar and the proposed site is located within the greater Puget Sound region. The surrogate data sources were combined with data from existing travel patterns surrounding the site considering travel times and distances. The resulting trip distribution percentages reflect the combination of these analyses and reflect the accepted and reasonable methods outlined by ITE. The distribution patterns are intended to reflect the expected typical travel patterns on an average day.

For the Bremerton site, the employee distribution was estimated by comparing the relative distances and population densities with the WCC data, and adjusting proportionally. For example, when compared to the WCC, the Bremerton site has a higher proportion of households located within 10 miles, so it was assumed that a higher proportion of employees would live within 10 mile of that site.

Figure 19 shows the projected regional distribution of vehicle trips generated by the reception center. Approximately 50% of the total trips are expected to occur within 10 miles of the site. This is slightly higher than the WCC distribution (in which 43% of the total trips are expected to occur within 10 miles of the site, and approximately 50% are expected to occur within 20 miles of the site). However, based on the WCC data, it is also expected that project-generated trips would disperse throughout the Puget Sound region in all directions to and from the site, with approximately 90% of total trips expected to occur within 50 miles of the site.

Trip Assignment

The AM and PM peak hour project trips were assigned to roadways within the study area based on the trip distribution patterns described in the previous section. The AM and PM peak hour project trip assignments for the Bremerton alternative site are shown on Figure 20.



Department of Corrections
Westside Reception Center

Figure 19
ESTIMATED
PROJECT TRIP DISTRIBUTION
BREMERTON SITE

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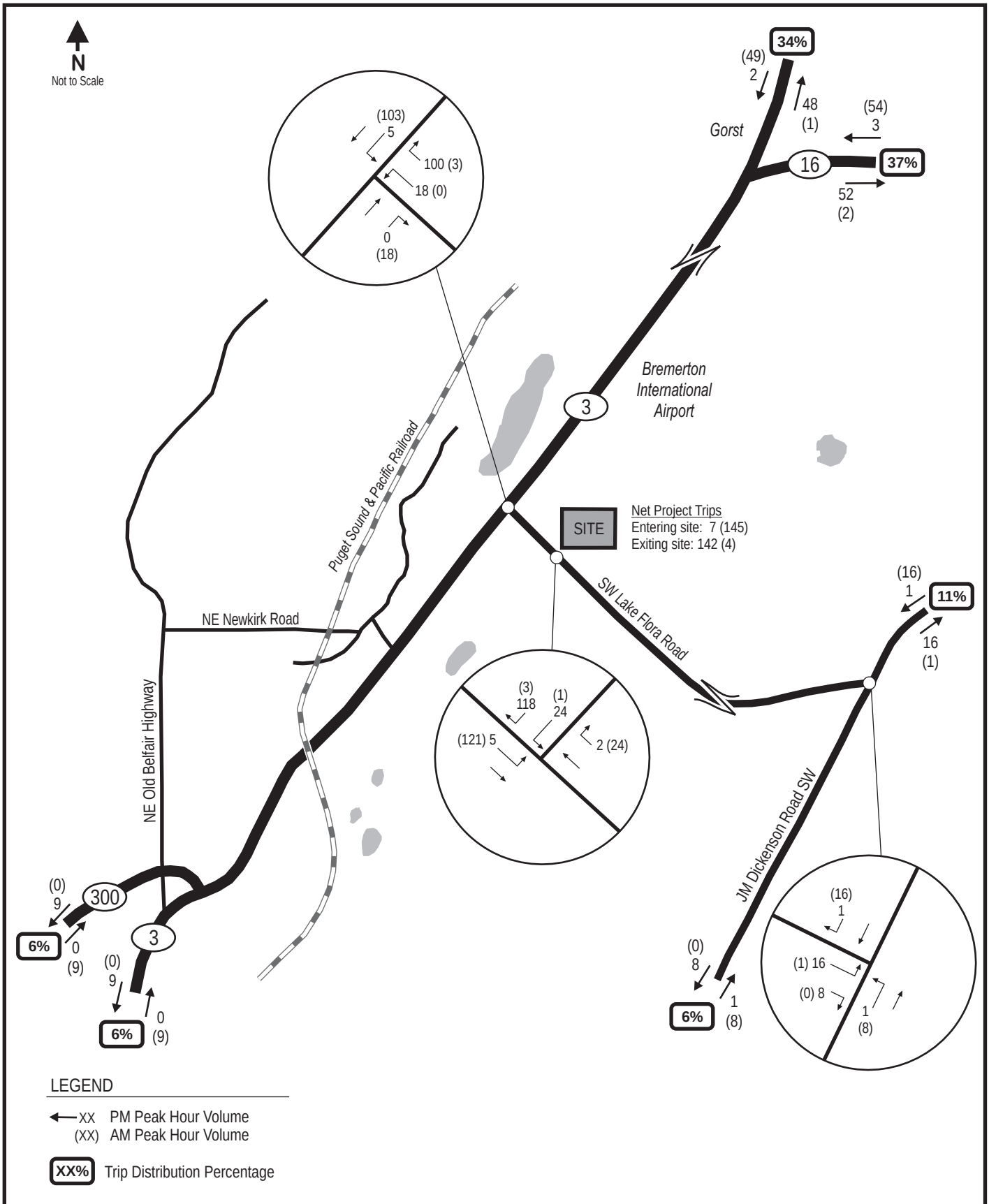

Figure 20

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PROJECT-GENERATED TRIPS
BREMERTON SITE

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With-Project Traffic Volumes

AM and PM project trips were added to the 2016 without-project traffic volumes to estimate future conditions with the proposed facility. The 2016 with-project AM and PM peak hour volumes are shown on Figure 21.

Traffic Volume Impacts

To illustrate the potential traffic volume impact of the proposed reception center, the 2016 with-project traffic volumes at each study area intersection were compared to the 2016 without-project traffic volumes. Table 14 summarizes the projected impacts at each of the study area intersections. As shown, at the SW Lake Flora Road/SR 3 intersection, the project is expected to contribute 8.8% of total entering traffic during the AM peak hour and 6.7% during the PM peak hour. Smaller percentages of project traffic are expected at the SW Lake Flora Road/JM Dickenson Road intersection where background traffic volumes are also comparatively low.

Table 14. Prison Reception Center 2016 Traffic Volume Impacts – Bremerton Site

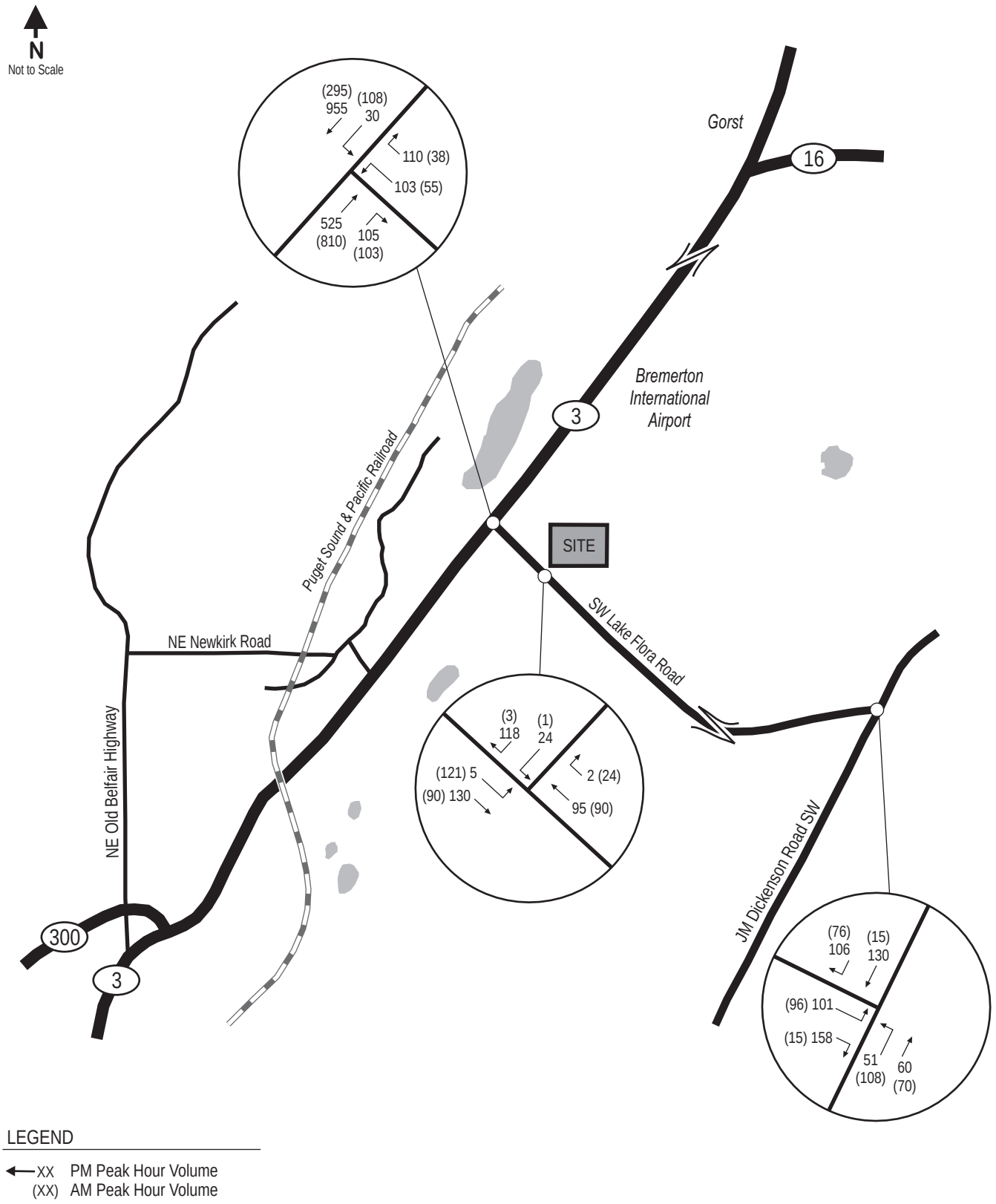
	AM Peak Hour			PM Peak Hour		
Intersection	Project [1]	Total Entering [2]	% Project [3]	Project	Total Entering	% Project
SW Lake Flora Road / SR 3	124	1,409	8.8%	123	1,828	6.7%
SW Lake Flora Rd / JM Dickenson Rd	25	380	6.6%	26	606	4.3%

Source: Heffron Transportation, Inc. August 2011.

1. Project = Number of project generated peak hour trips forecast to enter the intersection.

2. Total Entering = The total number peak hour trips forecast to enter the intersection.

3. % Project = Project's percentage of the total entering peak hour traffic at each intersection.



Department of Corrections
Westside Reception Center

Figure 21
2016 WITH PROJECT
TRAFFIC VOLUMES
BREMERTON SITE

heffron transportation, inc.

09.01.2011

3.1.3. Intersection Operations

In order to determine how the changes in traffic volumes described in the previous section would affect traffic operations in the study area, level of service analysis was performed for the 2016 with-project condition. Table 15 summarizes expected 2016 with-project levels of service; 2016 without-project results are also shown for comparison. As shown, the project is expected to add a small amount of delay to several movements at both intersections. However, the additional delay would be small and all movements at both intersections are projected to remain operating at LOS C or better. In some cases, the project is forecast to reduce average delay for an intersection approach. This occurs when the project adds trips to a movement (such as a right-turn movement) that has lower delay than other movements, and decreases the average delay per vehicle for the approach.

Table 15. Level of Service Summary – 2016 With-Project – Bremerton Site

	AM Peak Hour Conditions				PM Peak Hour Conditions			
	2016 Without-Project		2016 With-Project		2016 Without-Project		2016 With-Project	
Stop-sign Controlled Intersection	LOS [1]	Delay [2]	LOS	Delay	LOS	Delay	LOS	Delay
SW Lake Flora Road / SR 3 (overall)	A	1.7	A	2.6	A	1.6	A	2.9
Turns from Lake Flora Road	C	19.9	C	21.8	C	22.4	C	20.3
Southbound Left Turns to Lake Flora Road	B	10.9	B	12.5	A	9.1	A	9.1
Roundabout Controlled Intersection	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
SW Lake Flora Rd / JM Dickenson Rd [3](overall)	A	5.3	A	5.5	A	6.4	A	6.7
Eastbound approach on Lake Flora Road	A	4.4	A	4.5	A	7.2	A	7.7
Northbound approach on JM Dickenson Rd	A	6.1	A	6.2	A	5.2	A	5.3
Southbound approach on Lake Flora Road	A	4.8	A	5.1	A	6.1	A	6.2

Source: Heffron Transportation, August 2011.

1. LOS = Level of service.

2. Delay = Average seconds of delay per vehicle.

3. Intersection is currently stop-sign controlled, but will be reconfigured as a roundabout in late 2011.

The *Highway Capacity Manual* LOS report also provides 95th-percentile queue length estimates. At the SW Lake Flora Road/SR 3 intersection, the largest estimated 95th-percentile queue was for left-turning vehicles from SW Lake Flora Road to SR 3 (projected to be 55 feet or about 3 vehicles) during the PM peak hour. All other estimated queues were less than this value. Based on the queuing analysis results, the existing and planned channelization would not require modifications to accommodate traffic from the proposed reception center.

3.1.4. VMT and Travel Time Analyses

Vehicle-miles traveled (VMT) is a common measure in transportation that reflects the number of miles driven in vehicles over a given period of time. Estimates of annual VMT were prepared for employees and transport trips, since these are the two largest generators of daily traffic. To estimate VMT for reception center employees, travel distances (in miles) to the Bremerton site were determined using the same employee zip codes and approximate employee percentages used to develop the project trip distribution patterns. Estimates of VMT for transport trips were based on

detailed transport schedule information provided by the DOC that reflects existing routes serving the WCC. The total VMT for all employee and transport trips were calculated and summed to determine a total daily VMT estimate for the trips made to and from the site. The daily VMT estimate was factored to estimate an annual VMT, which is shown in Table 16. Annual VMT for each of the project sites is shown for comparison. Annual VMT are expected to range from about 5.88 million to about 6.85 million for the three site alternatives. The annual VMT for the Bremerton site alternative are projected to be about 6.33 million, in the middle of the three site alternatives. For transport trips, the three sites are expected to have relatively similar annual VMT estimates—ranging from a low of about 215,290 (Bremerton) to a high of 222,070 (Mason County). These estimates are similar because many of the transport trips are quite long and the variation among the three sites is somewhat modest compared to overall trip length.

Total annual vehicle travel time is another measure that helps to compare the site alternatives. It compares the total amount of time that drivers would spend in vehicles traveling to and from the site alternatives. To estimate total passenger vehicle travel time, typical travel times (in minutes) from each of the zip codes described previously to the project site were determined. The total daily travel time for employee and transport trips were estimated and summed to determine a total daily travel time for trips made to and from each site. The total daily travel time was converted to vehicle-hours and then to annual vehicle travel time, which is also shown in Table 16. Annual vehicle travel time for each of the project site alternatives is shown for comparison. Annual passenger vehicle travel time is expected to range from about 140,670 (Thurston County) to about 166,050 (Bremerton) vehicle-hours.

Table 16. Annual VMT and Vehicle Travel Time Comparison – Bremerton Site

Measure (Trip Component)	Bremerton	Mason County	Thurston County
Annual Vehicle Miles Traveled (VMT)			
Employees	6,113,910	6,628,400	5,657,740
Transports	215,290	222,070	220,600
Total Annual VMT	*6,329,200*	*6,850,470*	*5,878,340*
Annual Vehicle Travel Time (veh-hours)			
Employees	161,960	158,330	136,550
Transports	4,090	4,150	4,120
Total Annual Vehicle Travel Time	*166,050*	*162,480*	*140,670*

Source: Heffron Transportation, Inc., August 2011.

3.1.5. Site Access and Internal Circulation

As shown on Figure 2, the Bremerton site plan reflects one site access driveway on SW Lake Flora Road. This access would be located approximately 1,275 feet southeast of the SR 3 intersection. Operational analysis of the access driveway was performed for AM and PM peak hour conditions. All movements at the site access are expected to operate at LOS B or better during the morning and evening peak hours.

The site access was also reviewed to determine if a left-turn pocket would be needed to serve trips entering the site from SW Lake Flora Road. Left-turn storage guidelines published in the WSDOT

Design Manual[39] were reviewed with the projected 2016 with-project traffic volumes. Due to the high volume of left turns into the site expected to arrive from SR 3 during the AM peak hour and the high speed of traffic on SW Lake Flora Road, left-turn storage would likely be needed for the site access driveway. Exhibit 1310-16b in the *Design Manual* provides guidelines for the length of left-turn storage for highways with a speed limit of 50 mph. Based on these guidelines and the projected traffic volumes at the site access driveway, the left-turn storage length should be 100 feet. Exhibit 1310-18a provides guidelines for median channelization widening to accommodate left-turn storage. It indicates that, for a 50-mph roadway, the left-turn pocket should be 12-feet wide and have a minimum of 100-feet of storage, a 50-foot buffer, and a 300-foot taper. Southeast of the site access, widening would also be required to transition back to two lanes. In total, this could require widening SW Lake Flora Road for about 750 feet (450 feet to the northwest and 300 feet to the southeast).

The project site driveway on SW Lake Flora Road will also be required to provide minimum intersection sight distance for vehicles turning to and from the access. The WSDOT *Design Manual* also provides recommendations for intersection sight distance in Exhibit 1310-27a. Based on the existing speed limit of SW Lake Flora Road and the minimum standards, the access driveway should be located so that it can provide a minimum of 700 feet of sight distance in both directions. SW Lake Flora Road has some vertical and horizontal curvature that can limit sight distance; however, the project site being considered appears to have adequate frontage such that the driveway could be located to ensure minimum sight distance is provided.

On-site circulation is planned to occur from the access driveway with internal secondary connections to the bus yard, staff and public parking, and a vehicle service yard.

3.1.6. Traffic Safety

If located at the Bremerton site, the proposed reception center would have its access driveway on SW Lake Flora Road. New driveways create new conflict points on roadways and can have the potential for collisions. However, as described in the previous section, a center-left-turn pocket is recommended for the site access driveway. In addition, the driveway would be required to provide minimum intersection sight distance (700 feet in both directions). Therefore, there are no specific safety concerns regarding the proposed driveway.

One of the study area intersections evaluated for the Bremerton site—SW Lake Flora Road/JM Dickenson Road—experienced a relatively high rate of collisions over the three-year analysis period from 2008 through 2010. However, as previously described, the intersection is currently being reconfigured as a roundabout. Roundabouts are generally recognized for reducing the frequency and severity of collisions. The reception center project would increase traffic volumes through this intersection and could contribute proportionally to future collision experience. Project traffic would represent about 2.5% of total entering future daily traffic at this location and it is not expected to result in a significant impact to safety conditions.

Project traffic is expected to represent less than 4% of total entering daily (24-hour) traffic at the SR 3/SW Lake Flora Road intersection. Most project traffic would be making right turns from SW Lake Flora Road to SR 3 or left turns from SR 3 to SW Lake Flora Road, and would have less exposure to conflicting movements. Therefore, no significant adverse transportation safety impacts are anticipated with the proposed reception center project at the Bremerton site.

[39] WSDOT Design Manual, July 2011.

3.1.7. Transit

While it is possible that the proposed reception center project could generate some demand for transit, none is anticipated at this time since there is not an existing transit stop at or very near the proposed site location. As a result, the project is not expected to adversely impact transit service or facilities in the study area. It is possible that the DOC could work with a local transit provider, such as Mason County Transit or Kitsap Transit, to establish service for the facility. However, no such service is currently planned or funded.

3.1.8. Non-Motorized Facilities

While it is possible that the proposed reception center project could generate a few non-motorized trips, none are anticipated at this time. As a result, the project is not expected to adversely impact non-motorized facilities in the study area.

City of Bremerton staff has indicated the *Bremerton Municipal Code (BMC) Title 11* would require full street improvements and dedication of public right-of-way along the project site frontage. Frontage improvements are typically required along the entire street frontage of the parcel to be developed. The length of the actual frontage improvements for this alternative site will depend on the size and location of the parcel selected for development. The code required frontage improvements are detailed in the "Functional Roadway Classification" table that is part of the *Bremerton Road Standards*.[40] For SW Lake Flora Road—a minor arterial—half-street improvements could consist of curb, gutter, and sidewalk, a 5-foot bike lane, a 6-foot planter strip, and a 12-foot travel lane. City staff has also noted that a subarea plan currently being developed (for the SKIA) will likely contain different standards for frontage requirements, allowing more flexibility for development. The new standards will have an emphasis on Low Impact Development (LID), and will be available for review in fall of 2011. City staff indicated that some form of pedestrian walkway will likely be required with either the existing standards (sidewalk) or the updated standards. With the required frontage improvements, non-motorized access in the site vicinity would be improved with the project.

3.1.9. Parking Demand and Supply

Information provided by the DOC to estimate trip generation for the proposed facility was also used to estimate peak parking demand. The detailed trip generation spreadsheets (developed for this analysis and described previously in *Section 3.1.2*) accounted for all trips that would be generated by the project and noted expected arrival and departure times for each vehicle. This information was used to develop a parking accumulation spreadsheet model that estimates the number of vehicles that would be parked on site for each hour of the day. The peak parking demand for the proposed reception center would include vehicles from employees, visitors, volunteers, and transport/fleet vehicles.

Table 17 summarizes the peak parking demand for each of the parking generators. The peak parking demand is expected to occur midday between 12:30 and 1:30 P.M. when all administrative staff are on site and there is an overlap of two custody-staff shifts. This would occur when custody staff working Shift 3 (expected to begin at 1:00 P.M.) arrive before custody staff working Shift 2 (expected to end at 1:10 P.M.) leave the site. During this time, the peak parking demand is projected to be 390 vehicles. This peak demand is expected to occur for less than an hour. Parking demand for the remainder of the day would range from about 65 vehicles overnight to about 315 vehicles during the early afternoon.

[40] City of Bremerton Road Standards, Functional Roadway Classification, 10/22/2002.

Table 17. Parking Demand Summary – Bremerton Site

Parked Vehicle Generator	Peak Parking Demand	Time of Day Peak Would Occur
Employee vehicles	368	12:30 to 1:30 P.M.
Visitor/Volunteer vehicles	15	5:30 to 8:00 P.M.
Transport & fleet vehicles	12	3:00 to 3:30 P.M.
Cumulative parking demand [1]	390	12:30 to 1:30 P.M.

Source: Heffron Transportation, August 2011.

1. The cumulative peak parking demand represents the largest number of vehicles parked on site at any one time, and assumes that parking spaces can be shared among the users. Because the peak parking demands for each of the user types occur at different times of the day, the cumulative peak parking demand does not equal the sum of the individual peak parking demands.

As described previously and as shown on Figure 2, the proposed reception center would construct about 400 parking spaces on site. This parking supply would be adequate to meet the projected peak parking demand. Therefore, no adverse parking impacts are anticipated.

3.1.10. Construction Traffic Impacts

Construction of the reception center at the Bremerton site is expected to require earthwork that would involve cut and fill of approximately 320,000 cubic yards (cy) of material. However, this earthwork is expected to occur on-site (balancing the cut and fill amounts) and no off-site transport is expected.

Building materials (including concrete for foundations, asphalt for parking facilities, and structural elements) would be transported to the site regularly throughout the construction period. The number of deliveries each day would vary depending on the phase of construction. It is estimated that overall construction would require approximately 22 months (1.8 years).

Construction of the project would also require employees and equipment that would generate traffic to and from the site. Construction at the site would likely occur Monday through Friday. It is anticipated that construction workers would arrive at the construction site before the AM peak traffic period on local area streets and depart the site prior to the PM peak period; construction work shifts typically begin by 7:00 A.M. and end by 4:00 P.M., while the corresponding peak traffic periods typically occur slightly later. The number of workers at the project site at any one time would vary depending upon the nature and construction phase of the project. Based on past experience with construction of other corrections facilities, the number of construction employees on site is estimated to range from a low of 5 workers (during early site work) to a peak of about 175 workers (during periods with many trades working within the buildings). The presence of a temporary construction work force would also generate demand for parking spaces around the project site. It is expected that construction employees would be able to park in on-site staging areas or in new parking lots constructed on site for the project as they become available.

The proposed project would likely generate a noticeable amount of construction-related traffic on surrounding roadways. Construction worker vehicles and trucks carrying materials to the site would be most noticeable on SW Lake Flora Road. The truck traffic is not expected to degrade operations of study area intersections during off-peak hours. A construction transportation management plan (CTMP) addressing site access, traffic control, hauling routes, construction employee parking, and pedestrian and bicycle control in the area would be prepared per City of Bremerton requirements. In addition, the City of Bremerton may require mitigation for construction vehicle damage to roadways in the site vicinity.

3.2. Mason County Site Alternative

3.2.1. Roadway Network

The project proposes to construct one site access driveway on SR 102 (W Dayton Airport Road); no off-site road modifications are proposed.

3.2.2. Traffic Volumes

Construction of the reception center on the Mason County site would affect traffic volumes in the transportation study area. Because the site is currently undeveloped, there are no existing trips generated at the site that would be removed if the project is built.

If reception center activities moved from the WCC to a new reception center located at the Mason County site alternative, the existing WCC would be backfilled with general-population offenders. According to DOC staff, no significant changes to existing traffic generated by the WCC would be expected with this change because the number of offenders, employees, and visitors would remain about the same as the existing condition (see *Appendix B* for a detailed discussion of the anticipated changes at WCC with the proposed reception center). Therefore, no changes to the background traffic volumes near the Mason County site due to operational changes at the WCC were assumed.

The following sections describe the assumptions used to estimate the site-generated trips, the distribution and assignment of those trips through the study area intersections, and the resulting 2016 with-project traffic volumes at the study area intersections.

Trip Generation

The method and assumptions applied to estimate the number of trips that would be generated by the project at the Mason County site are the same as those applied for the Bremerton Site (see *Section 3.1.2* for detailed discussion of the trip generation estimation approach).

Table 18 summarizes vehicle trips that are projected to result from the proposed reception center if it is located at the Mason County site alternative. As shown, the project is expected to result in 994 daily vehicle trips, with 149 trips occurring in the AM peak hour (6:30 to 7:30 A.M.) and 149 trips occurring in the PM peak hour (5:00 to 6:00 P.M.). Because the majority of peak hour trips would be employee-generated, most are inbound during the AM peak hour and outbound during the PM peak hour.

Table 18. Net Increase in Trip Generation – Mason County Site

Trip Type	Daily Trips	AM Peak Hour Trips [1]			PM Peak Hour Trips [2]		
		In	Out	Total	In	Out	Total
Employees [3]	830	140	0	140	0	140	140
Transports	24	1	2	3	0	0	0
Releases	10	1	0	1	0	0	0
Visitors	60	0	0	0	0	0	0
Volunteers	20	1	0	1	6	1	7
Deliveries	20	1	1	2	0	0	0
Other	30	1	1	2	1	1	2
Total Trips	994	145	4	149	7	142	149

Source: Heffron Transportation, Inc., July 2011.

1. *AM peak hour trips generated by the Westside Prison Reception Center are estimated to occur between 6:30 and 7:30 A.M.*
2. *PM peak hour trips generated by the Westside Prison Reception Center are estimated to occur between 5:00 and 6:00 P.M.*
3. *AM and PM peak hour employee trips would be generated by non-custody administrative and health services staff members who work from 7:00 A.M. to 5:00 P.M. The facility would also employ custody and nursing staff who work 24/7 in three shifts. Employee-generated trips that would occur at shift changes would occur outside of the AM and PM peak hours.*

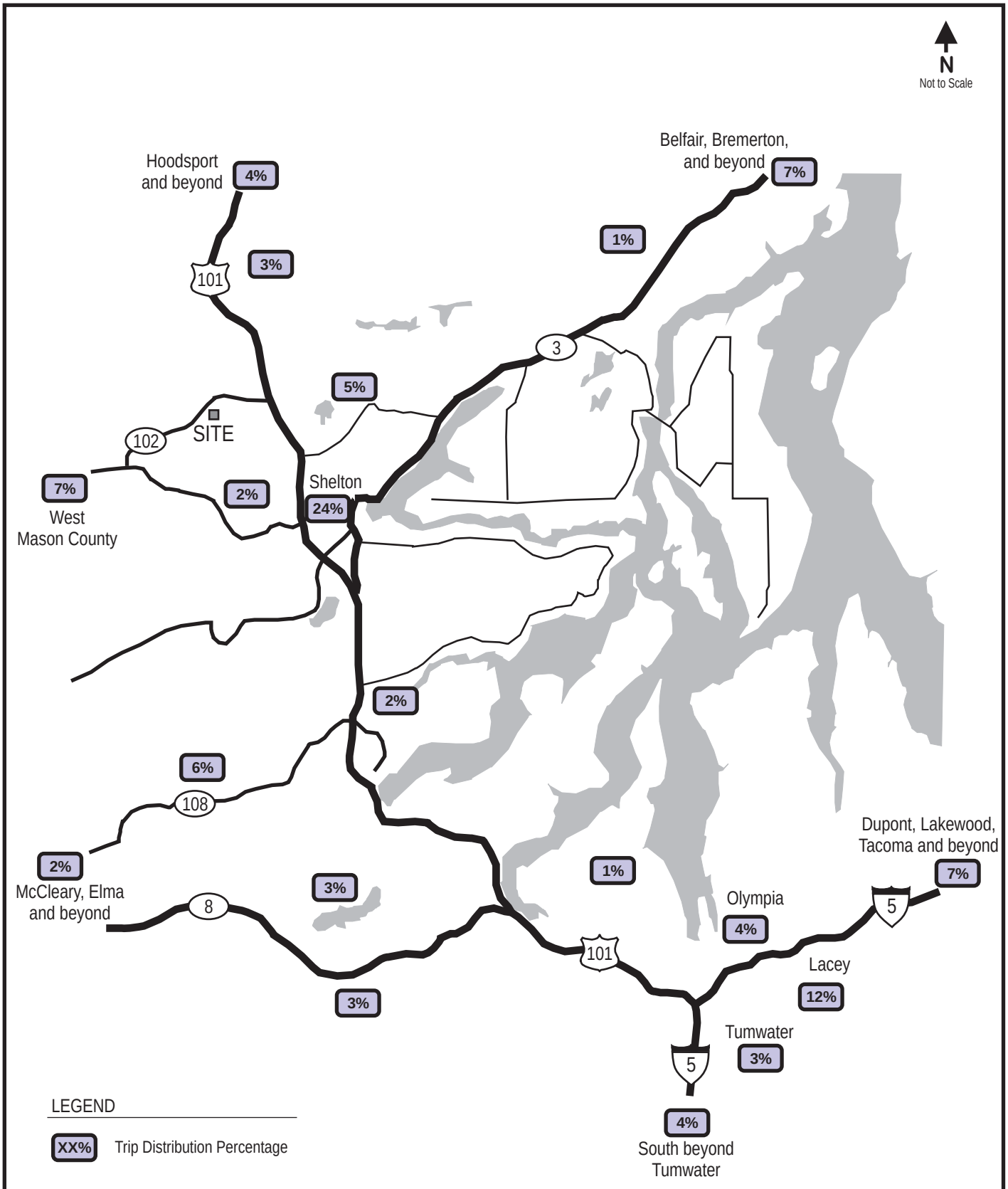
Trip Distribution

The method and assumptions applied to estimate the distribution of trips that would be generated by the project at the Mason County site were similar to the surrogate data method used for the Bremerton Site (see *Section 3.1.2* for detailed discussion of the surrogate data trip distribution approach). However, for the Mason County site, the home zip codes for 568 WCC employees were compiled and directly used to estimate origins and destinations for the trips to and from the proposed reception center, as its location is very near the existing WCC.

Figure 22 shows the projected regional distribution of vehicle trips generated by the reception center. Similar to the distribution of WCC employees, approximately 43% of the total trips are expected to occur within 10 miles of the site, and approximately 50% are expected to occur within 20 miles of the site. However, based on the WCC data, it is also expected that project-generated trips would disperse throughout the Puget Sound region in all directions to and from the site, with approximately 90% of total trips expected to occur within 50 miles of the site.

Trip Assignment

The AM and PM peak hour project trips were assigned to roadways within the study area based on the trip distribution patterns described in the previous section. The AM and PM peak hour project trip assignments for the Mason County alternative site are also shown on Figure 23.



Department of Corrections
Westside Reception Center

Figure 22
ESTIMATED
PROJECT TRIP DISTRIBUTION
MASON COUNTY SITE

heffron transportation, inc.

09.01.2011

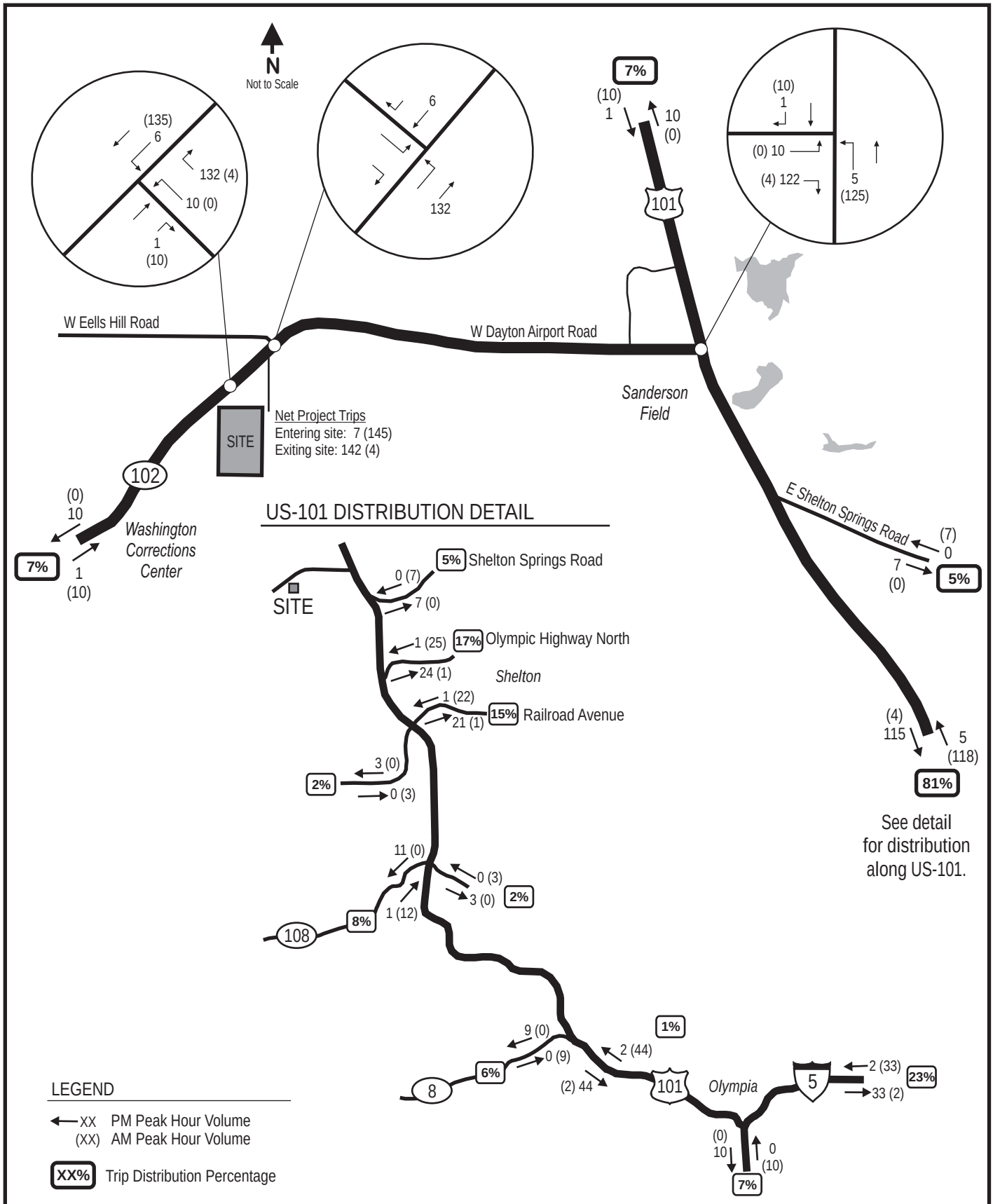


Figure 23

Department of Corrections
Westside Reception Center

PROJECT-GENERATED TRIPS
MASON COUNTY SITE

heffron transportation, inc.

09.01.2011

With-Project Traffic Volumes

AM and PM project trips were added to the 2016 without-project traffic volumes to estimate future conditions with the proposed facility. The 2016 with-project AM and PM peak hour volumes are shown on Figure 24.

Traffic Volume Impacts

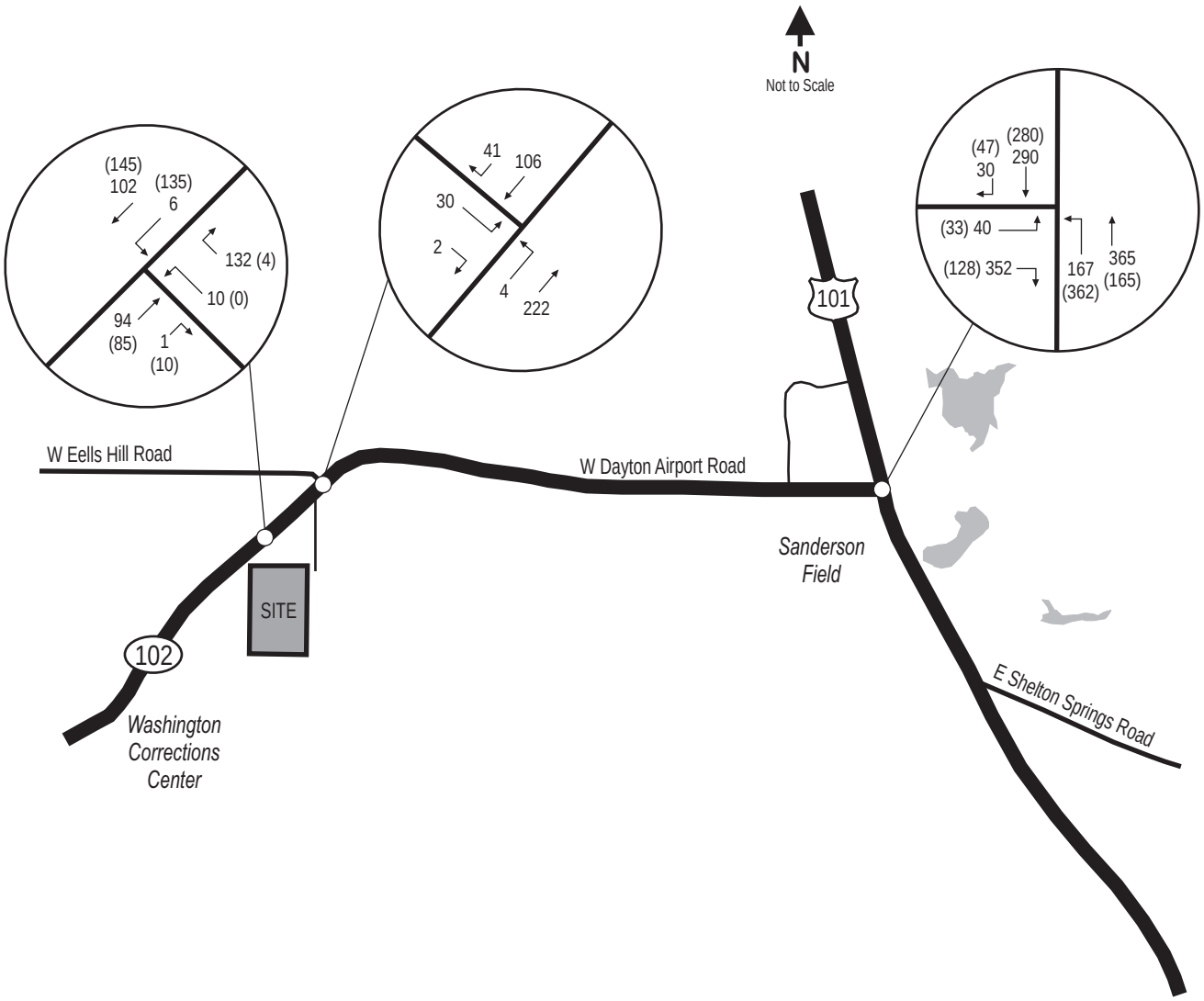
To illustrate the potential traffic volume impact of the proposed reception center, the 2016 with-project traffic volumes at the study area intersections were compared to the 2016 without-project traffic volumes. Table 19 summarizes the projected impacts at each of the study area intersections. As shown, at the SR 102/US 101 intersection, the project is expected to contribute 13.7% of total entering traffic during the AM peak hour and 11.1% during the PM peak hour. The largest percentage of project traffic is projected to occur at the SR 102/Eells Hill Road intersection where nearly all project traffic would pass through the intersection on SR 102 (project generated trips are not expected to make turns at this location) and background traffic volumes are comparatively low.

Table 19. Prison Reception Center 2016 Traffic Volume Impacts – Mason County Site

	AM Peak Hour			PM Peak Hour		
Intersection	Project [1]	Total Entering [2]	% Project [3]	Project	Total Entering	% Project
SR 102 / US 101	139	1,015	13.7%	138	1,244	11.1%
SR 102 / Eells Hill Road		n/a [4]		138	405	34.1%

Source: Heffron Transportation, Inc. August 2011.

1. *Project = Number of project generated peak hour trips forecast to enter the intersection.*
2. *Total Entering = The total number peak hour trips forecast to enter the intersection.*
3. *% Project = Project's percentage of the total entering peak hour traffic at each intersection.*
4. *Analyses were not required for AM peak hour conditions.*



LEGEND

←XX PM Peak Hour Volume
(XX) AM Peak Hour Volume

Department of Corrections
Westside Reception Center

Figure 24
2016 WITH PROJECT
TRAFFIC VOLUMES
MASON COUNTY SITE

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09.01.2011

3.2.3. Intersection Operations

In order to determine how the changes in traffic volumes described in the previous section would affect traffic operations in the study area, level of service analysis was performed for the 2016 with-project condition. Table 20 summarizes expected 2016 with-project levels of service; 2016 without-project results are also shown for comparison. As shown, the projected traffic increases generated by the proposed reception center would not degrade operations at either of the off-site study area intersections. All movements at both locations would continue to operate at LOS C or better.

Table 20. Level of Service Summary – 2016 With-Project – Mason County Site

	AM Peak Hour Conditions				PM Peak Hour Conditions			
	2016 Without-Project		2016 With-Project		2016 Without-Project		2016 With-Project	
Unsignalized Intersections	LOS [1]	Delay [2]	LOS	Delay	LOS	Delay	LOS	Delay
SR 102 / US 101 (overall)	A	5.5	A	6.9	A	4.9	A	8.1
Turns from SR 102 to US 101	C	15.5	C	19.6	C	15.1	C	21.4
Northbound Left Turns from US 101	A	9.1	A	9.9	A	8.4	A	8.5
SR 102 / W Eells Hill Road (overall)	n/a [3]				A	0.7	A	1.3
Turns from Eells Hill Rd to SR 102					B	10.2	B	11.3
Left Turns from SR 102 to Eells Hill Rd					A	0.3	A	0.2

Source: Heffron Transportation, August 2011.

1. LOS = Level of service.

2. Delay = Average seconds of delay per vehicle.

3. Analyses were not required for AM peak hour conditions.

WSDOT requested analysis to determine if additional channelization or changes to the existing stop-sign traffic control could be required at the SR 102 intersections with US 101 and W Eells Hill Road. During the PM peak hour, the projected 95th percentile queue for the SR 102 approach to US 101 is 131 feet (about 7 vehicles) in 2016 with the reception center project. This is 72 feet longer (between three and four cars) than conditions without the project (the estimated queue without the project is estimated at 59 feet or about three cars). Queues at the W Eells Hill Road intersection are projected to be negligible (with an average of less than one vehicle) during the PM peak hour with the project. Based on these operational analysis results, neither of the off-site intersections would require additional channelization or changes to traffic control to accommodate the proposed reception center project.

3.2.4. VMT and Travel Time Analyses

To estimate VMT for reception center employees, travel distances (in miles) to the Mason County site were determined using the same employee zip codes and approximate employee percentages used to develop the project trip distribution patterns. Estimates of VMT for transport trips were based on detailed transport schedule information provided by the DOC that reflects existing routes serving the WCC. The total VMT for all employee and transport trips were calculated and summed to determine a total daily VMT estimate for the trips made to and from the site. The daily VMT estimate was factored to estimate an annual VMT, which is shown in Table 21. Annual VMT for each of the project sites is shown for comparison. Annual VMT are expected to range from about 5.88 million to

about 6.85 million for the three site alternatives. The annual VMT for the Mason County site alternative is projected to be the highest at about 6.85 million. For transport trips, the three sites are expected to have relatively similar annual VMT estimates—ranging from a low of about 215,290 (Bremerton) to a high of 222,070 (Mason County). These estimates are similar because many of the transport trips are quite long and the variation among the three sites is somewhat modest compared to overall trip length.

Total annual vehicle travel time is another measure that helps to compare the site alternatives. It compares the total amount of time that drivers would spend in vehicles traveling to and from the site alternatives. To estimate total passenger vehicle travel time, typical travel times (in minutes) from each of the zip codes described previously to the project site were determined. The total daily travel time for employee and transport trips were estimated and summed to determine a total daily travel time for trips made to and from each site. The total daily travel time was converted to vehicle-hours and then to annual vehicle travel time, which is also shown in Table 21. Annual vehicle travel time for each of the project site alternatives is shown for comparison. Annual passenger vehicle travel time are expected to range from about 140,670 (Thurston County) to about 166,050 (Bremerton) vehicle-hours.

Table 21. Annual VMT and Vehicle Travel Time Comparison – Mason County Site

Measure (Trip Component)	Bremerton	Mason County	Thurston County
Annual Vehicle Miles Traveled (VMT)			
Employees	6,113,910	6,628,400	5,657,740
Transports	215,290	222,070	220,600
Total Annual VMT	*6,329,200*	*6,850,470*	*5,878,340*
Annual Vehicle Travel Time (veh-hours)			
Employees	161,960	158,330	136,550
Transports	4,090	4,150	4,120
Total Annual Vehicle Travel Time	*166,050*	*162,480*	*140,670*

Source: Heffron Transportation, Inc., August 2011.

3.2.5. Site Access and Internal Circulation

As shown on Figure 3, the Mason County site plan reflects one site access driveway on SR 102 (W Dayton Airport Road). The driveway would be located approximately 900 feet west of the Eells Hill Road intersection. Operational analysis of the access driveway was performed for AM and PM peak hour conditions. All movements at the site access are projected to operate at LOS B or better during the morning and evening peak hours.

The site access was also reviewed to determine if a left-turn pocket would be needed to serve trips entering the site from SR 102. Left-turn storage guidelines published in the WSDOT *Design Manual*[41] were reviewed with the projected 2016 with-project traffic volumes. Due to the high volume of left turns into the site expected to arrive from the east during the AM peak hour and the relatively high speed of traffic on SR 102, left-turn storage would likely be needed for the site access driveway. Exhibits 1310-16a and 1310-16b in the *Design Manual* provide guidelines for the length of

[41] WSDOT Design Manual, July 2011.

left-turn storage for highways with speed limits of 40 and 50 mph, respectively. Based on these guidelines, the existing 45 mph speed limit, and the projected traffic volumes at the site access driveway, the left-turn storage length should be 100 feet. Exhibit 1310-18a provides guidelines for median channelization widening to accommodate left-turn storage. It indicates that, for a 45 mph roadway, the left-turn pocket should be 12-feet wide and have a minimum of 100-feet of storage, a 50-foot buffer, and a 270-foot taper. West of the site access, widening would also be required to transition back to two lanes to the west. In total, this could require widening SR 102 for about 720 feet (420 feet to the east and 300 feet to the west).

The project site driveway on SR 102 will also be required to provide minimum intersection sight distance for vehicles turning to and from the access. The WSDOT *Design Manual* also provides recommendations for intersection sight distance in Exhibit 1310-27a. Based on the existing speed limit of SR 102 and the minimum standards, the access driveway should be located so that it can provide a minimum of 630 feet of sight distance in both directions. SR 102 has some vertical undulations; however, the project site being considered appears to have adequate frontage such that the driveway could be located to ensure minimum sight distance is provided.

On-site circulation is planned to occur from the main access driveway with internal secondary connections to the bus yard, staff and public parking, and a possible vehicle service yard (vehicle service may also take place at the nearby WCC).

3.2.6. Traffic Safety

If located at the Mason County site, the proposed reception center would have its access driveway on SR 102. New driveways create new conflict points on roadways and can have the potential for collisions. However, as described in the previous section, a center-left-turn pocket would likely be needed for the access driveway. In addition, the driveway would be required to provide minimum intersection sight distance (630 feet in both directions). Therefore, there are no specific safety concerns resulting from the proposed driveway.

Neither of the study area intersections evaluated for the Mason County site experienced unusual collision rates or patterns over the three-year analysis period from 2008 through 2010. The reception center project would increase traffic volumes through both study area intersections and could contribute proportionally to future collision experience. Project traffic would represent about 7% of total entering future daily (24-hour) traffic at the SR 102/US 101 intersection and about 28% at SR 102/Eells Hill Road. As project traffic is not expected to make turns at Eells Hill Road and overall delay and operations are expected to remain at LOS B, project traffic is not expected to adversely impact safety conditions at this location. At the US 101 intersection, most project traffic would make right turns from SR 102 to US 101 or left turns from US 101 to SR 102. Therefore, project traffic is expected to have less exposure to conflicting movements compared to other turns at this location. Therefore, no significant adverse transportation safety impacts are anticipated with the proposed reception center project at the Mason County site.

3.2.7. Transit

While it is possible that the proposed reception center project could generate some demand for transit, none is anticipated at this time since there is not an existing transit stop at or very near the proposed site location. As a result, the project is not expected to adversely impact transit service or facilities in the study area. It is possible that the DOC could work with a local transit provider, such as Mason County Transit, to establish service for the facility. However, no such service is currently planned or funded.

3.2.8. Non-Motorized Facilities

While it is possible that the proposed reception center project could generate a few non-motorized trips, none are anticipated at this time. As a result, the project is not expected to adversely impact non-motorized facilities in the study area.

WSDOT staff have indicated that project site frontage along SR 102 should be widened to provide the minimum shoulder width. Exhibit 1130-11 in the *WSDOT Design Manual* provides recommended shoulder widths for two-lane highways carrying traffic levels of 1,000 to 4,000 vehicles per day. The standard calls for a shoulder width of three feet. Although the *Mason County Regional Trails Plan* also identified SR 102 between US 101 and Shelton-Matlock Road as a "short-term priority bikeway," Mason County will not require any widening along the project frontage beyond the minimum shoulder width required by WSDOT.[42] With the widened shoulder along the project frontage, non-motorized access in the site vicinity would be improved with the project.

3.2.9. Parking Demand and Supply

Information provided by the DOC to estimate peak parking demand was described previously in *Section 3.1.9*. Table 22 summarizes the peak parking demand for each of the parking generators. The peak parking demand is expected to occur midday between 12:30 and 1:30 P.M. when all administrative staff are on site and there is an overlap of two custody-staff shifts. This would occur when custody staff working Shift 3 (expected to begin at 1:00 P.M.) arrive before custody staff working Shift 2 (expected to end at 1:10 P.M.) leave the site. During this time, the peak parking demand is projected to be 390 vehicles. This peak demand is expected to occur for less than an hour. Parking demand for the remainder of the day would range from about 65 vehicles overnight to about 315 vehicles during the early afternoon.

Table 22. Parking Demand Summary – Mason County Site

Parked Vehicle Generator	Peak Parking Demand	Time of Day Peak Would Occur
Employee vehicles	368	12:30 to 1:30 P.M.
Visitor/Volunteer vehicles	15	5:30 to 8:00 P.M.
Transport & fleet vehicles	12	3:00 to 3:30 P.M.
Cumulative parking demand [1]	390	12:30 to 1:30 P.M.

Source: Heffron Transportation, August 2011.

1. The cumulative peak parking demand represents the largest number of vehicles parked on site at any one time, and assumes that parking spaces can be shared among the users. Because the peak parking demands for each of the user types occur at different times of the day, the cumulative peak parking demand does not equal the sum of the individual peak parking demands.

As described previously and as shown on Figure 3, the proposed reception center would construct about 400 parking spaces on site. This parking supply would be adequate to meet the projected peak parking demand. Therefore, no adverse parking impacts are anticipated.

[42] Personal communication, Brian Matthews, PE, Deputy Director/County Engineer, Mason County Public Works Department, October 27, 2011.

3.2.10. Construction Traffic Impacts

Construction of the reception center at the Mason County site is expected to require earthwork that would involve cut and fill of about 120,000 cy of material. However, this earthwork is expected to occur on-site (balancing the cut and fill amounts) and no off-site transport is expected.

Building materials (including concrete for foundations, asphalt for parking facilities, and structural elements) would be transported to the site regularly throughout the construction period. The number of deliveries each day would vary depending on the phase of construction. It is estimated that overall construction would require approximately 22 months (1.8 years).

Construction of the project would also require employees and equipment that would generate traffic to and from the site. Construction at the site would likely occur Monday through Friday. It is anticipated that construction workers would arrive at the construction site before the AM peak traffic period on local area streets and depart the site prior to the PM peak period; construction work shifts typically begin by 7:00 A.M. and end by 4:00 P.M., while the corresponding peak traffic periods typically occur slightly later. The number of workers at the project site at any one time would vary depending upon the nature and construction phase of the project. Based on past experience with construction of other corrections facilities, the number of construction employees on site is estimated to range from a low of 5 workers (during early site work) to a peak of about 175 workers (during periods with many trades working within the buildings). The presence of a temporary construction work force would also generate demand for parking spaces around the project site. It is expected that construction employees would be able to park in on-site staging areas or in new parking lots constructed on site for the project as they become available.

The proposed project would likely generate a noticeable amount of construction-related traffic on surrounding roadways. Construction worker vehicles and trucks carrying materials to the site would be most noticeable on SR 102. The truck traffic is not expected to degrade operations of study area intersections during off-peak hours. A construction transportation management plan (CTMP) addressing site access, traffic control, hauling routes, construction employee parking, and pedestrian and bicycle control in the area would be prepared per WSDOT and Mason County requirements. In addition, WSDOT and/or Mason County may require mitigation for construction vehicle damage to roadways in the site vicinity.

3.3. Thurston County Site Alternative

3.3.1. Roadway Network

The project would utilize as its primary access the existing driveway on Old Highway 9 that served the prior use on the site (the Maple Lane School). The new reception center would also use a second existing access as an emergency and service access. No off-site road modifications are proposed.

3.3.2. Traffic Volumes

Two separate actions that would influence traffic volumes in the transportation study area were considered at the Thurston County alternative site:

1. The recent closure of the Maple Lane School and removal of associated traffic on the site, and
2. Constructing the Westside Prison Reception Center.

The following sections describe the assumptions used to determine the net change in site-generated trips, the distribution and assignment of those trips through the study area intersections, and the resulting 2016 with-project traffic volumes at the study area intersections.

Trip Generation

The method and assumptions applied to estimate the number of trips that would be generated by the project at the Bremerton and Mason County sites is the same as those applied for the Thurston County site (see *Section 3.1.2* for detailed discussion of the trip generation estimation approach).

Table 23 summarizes vehicle trips that are projected to result from the proposed reception center if it is located at the Thurston County site. As shown, the project is expected to result in 994 daily vehicle trips, with 149 trips occurring in the AM peak hour (6:30 to 7:30 A.M.) and 149 trips occurring in the PM peak hour (5:00 to 6:00 P.M.). Because the majority of peak hour trips would be employee-generated, most are inbound during the AM peak hour and outbound during the PM peak hour.

If the Thurston County site is selected for the proposed reception center, it would replace the former Maple Lane School Juvenile Correctional Facility and it is appropriate to evaluate the net change in traffic that would be generated at the site compared to its prior use. Therefore, traffic estimates for the Maple Lane School were also prepared and subtracted from the reception center estimates in order to calculate the estimated net change in site-generated traffic.

As shown, the site's prior use as the Maple Lane School generated an estimated 554 daily trips with 36 trips in the AM peak hour, and no trips in the PM peak hour. No PM peak hour trips were typically generated by the Maple Lane School due to its staff scheduling and shift times (see *Appendix B* for a detailed discussion of trips generated by the Maple Lane School). Based on these calculations, the reception center is projected to generate a net increase of 440 daily trips with 113 net new trips in the AM peak hour and 149 net new trips in the PM peak hour.

Table 23. Net Increase in Trip Generation – Thurston County Site

Trip Type	Daily Trips	AM Peak Hour Trips [1]			PM Peak Hour Trips [2]		
		In	Out	Total	In	Out	Total
Employees [3]	830	140	0	140	0	140	140
Transports	24	1	2	3	0	0	0
Releases	10	1	0	1	0	0	0
Visitors	60	0	0	0	0	0	0
Volunteers	20	1	0	1	6	1	7
Deliveries	20	1	1	2	0	0	0
Other	30	1	1	2	1	1	2
Total Reception Center	994	145	4	149	7	142	149
Less Existing Use [4]	*-554*	*-36*	*-0*	*-36*	*-0*	*-0*	*-0*
Net Increase in Trips	440	109	4	113	7	142	149

Source: Heffron Transportation, Inc., July 2011.

1. *AM peak hour trips generated by the Westside Prison Reception Center are estimated to occur between 6:30 and 7:30 A.M.*
2. *PM peak hour trips generated by the Westside Prison Reception Center are estimated to occur between 5:00 and 6:00 P.M.*
3. *AM and PM peak hour employee trips would be generated by non-custody administrative and health services staff members who work from 7:00 A.M. to 5:00 P.M. The facility would also employ custody and nursing staff who work 24/7 in three shifts. Employee-generated trips that would occur at shift changes would occur outside of the AM and PM peak hours.*
4. *Reflects trips generated by the former Maple Lane School. This facility was recently closed (June 2011), but existing permitted use of the site could allow a similar type of facility.*

Trip Distribution

Thurston County typically requires that transportation analyses for new developments utilize distribution patterns derived from the Thurston Regional Planning Council's (TRPC) travel demand model. Therefore, as recommended by County review staff, a traffic model distribution plot for project traffic was requested and performed by TRPC modeling staff.[43]

The distribution model run was performed from Traffic Analysis Zone (TAZ) 601, which is the model zone that contains the project site. The model distribution results were reviewed; however, it was determined that the model did not replicate the unique traffic characteristics of the reception center and the subject model zone did not load in the same location as the proposed site access. Therefore, to address these disadvantages and to remain consistent with the analyses prepared for the other two alternative sites, the same surrogate data method used for the Bremerton Site (see *Section 3.1.2*) were applied to estimate the Thurston County site traffic distribution. For the Thurston County site, the employee distribution was estimated by comparing the relative distances and population densities with the WCC data, and adjusting proportionally. For example, the Thurston County site has similar proportions of total households within 10 and 20 miles of the site, so it was assumed that the proportions of employees living within 10 and 20 miles of the Thurston County site would be similar to the WCC.

Figure 25 shows the projected regional distribution of vehicle trips generated by the reception center. Similar to the WCC distribution, approximately 43% of the total trips are expected to occur within 10 miles of the site, and approximately 50% are expected to occur within 20 miles of the site. However, based on the WCC data it is also expected that project-generated trips would disperse throughout the Puget Sound region in all directions to and from the site, with approximately 90% of total trips expected to occur within 50 miles of the site.

Trip Assignment

The net increase in AM and PM peak hour project trips were assigned to roadways within the study area based on the trip distribution patterns described in the previous section. The AM and PM peak hour project trip assignments are also shown on Figure 26.

With-Project Traffic Volumes

AM and PM project trips were added to the 2016 without-project traffic volumes to estimate future conditions with the proposed facility. The 2016 with-project AM and PM peak hour volumes are shown on Figure 27.

Traffic Volume Impacts

To illustrate the potential traffic volume impact of the proposed reception center, the 2016 with-project traffic volumes at each study area intersection were compared to the 2016 without-project traffic volumes. Table 24 summarizes the projected impacts at each of the study area intersections. As shown, the project is expected to contribute between 3.2% and 8.5% at the three major study area intersections. The largest proportion of project traffic would occur at the Old Highway 9/Carper Road

[43] Bharath Paladugu, Transportation Modeler, Thurston Regional Planning Council, August 2011.

SW intersection (20.5% in the PM peak hour); however, this large percentage is projected due to very low background traffic volumes.

Table 24. Prison Reception Center 2016 Traffic Volume Impacts – Thurston County Site

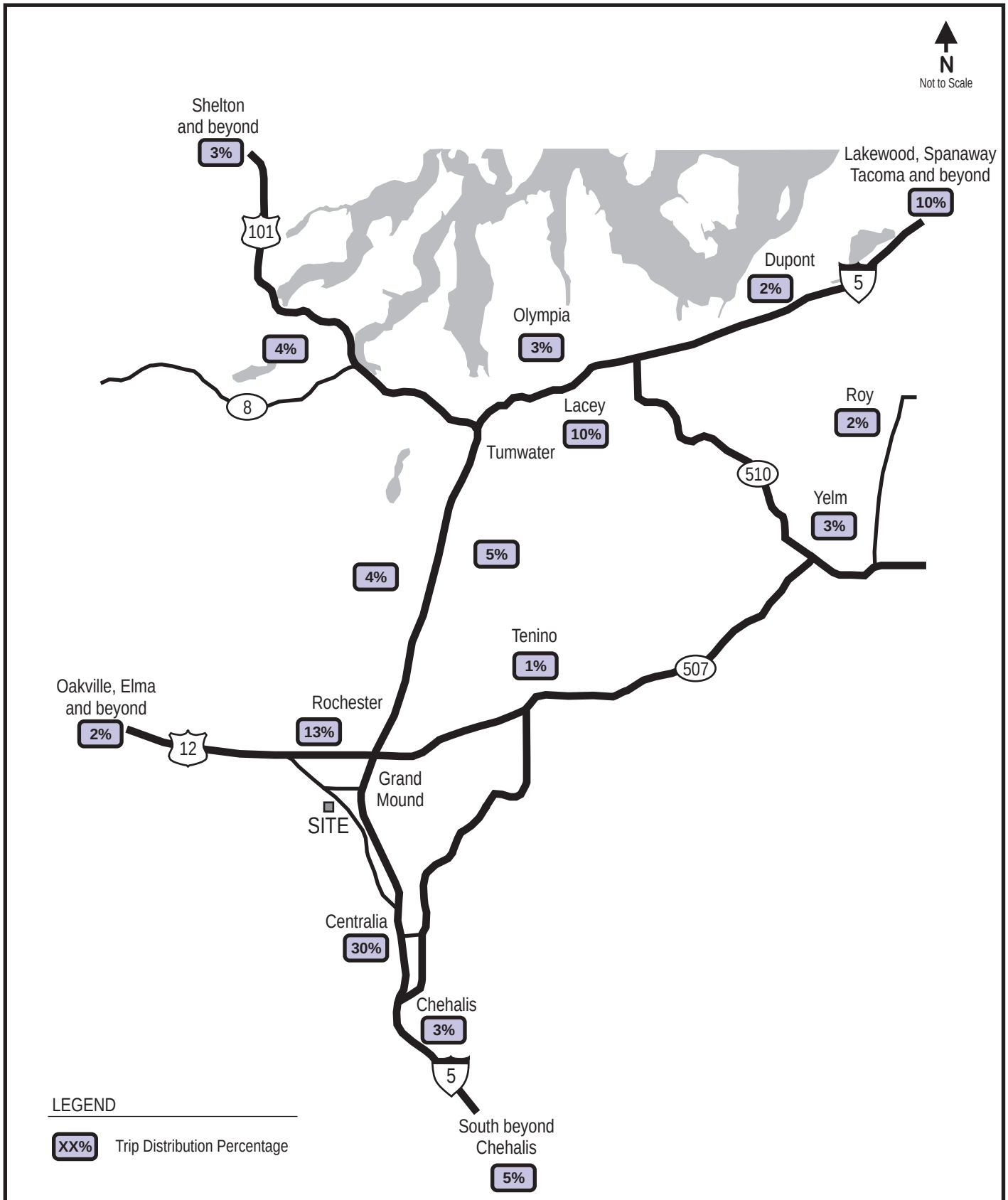
	AM Peak Hour			PM Peak Hour		
Intersection	Project [1]	Total Entering [2]	% Project [3]	Project	Total Entering	% Project
Old Hwy 99 SW / US 12 / Elderberry St	65	1,829	3.6%	88	2,745	3.2%
Old Hwy 9 SW / Old Hwy 99 SW	52	612	8.5%	62	1,114	5.6%
Old Hwy 9 SW / US 12	56	1,078	5.2%	81	1,325	6.1%
Old Hwy 9 SW / Carper Road SW	56	521	10.7%	81	396	20.5%

Source: Heffron Transportation, Inc. August 2011.

1. Project = Number of project generated peak hour trips forecast to enter the intersection.

2. Total Entering = The total number peak hour trips forecast to enter the intersection.

3. % Project = Project's percentage of the total entering peak hour traffic at each intersection.



Department of Corrections
Westside Reception Center

Figure 25
ESTIMATED
PROJECT TRIP DISTRIBUTION
THURSTON COUNTY SITE

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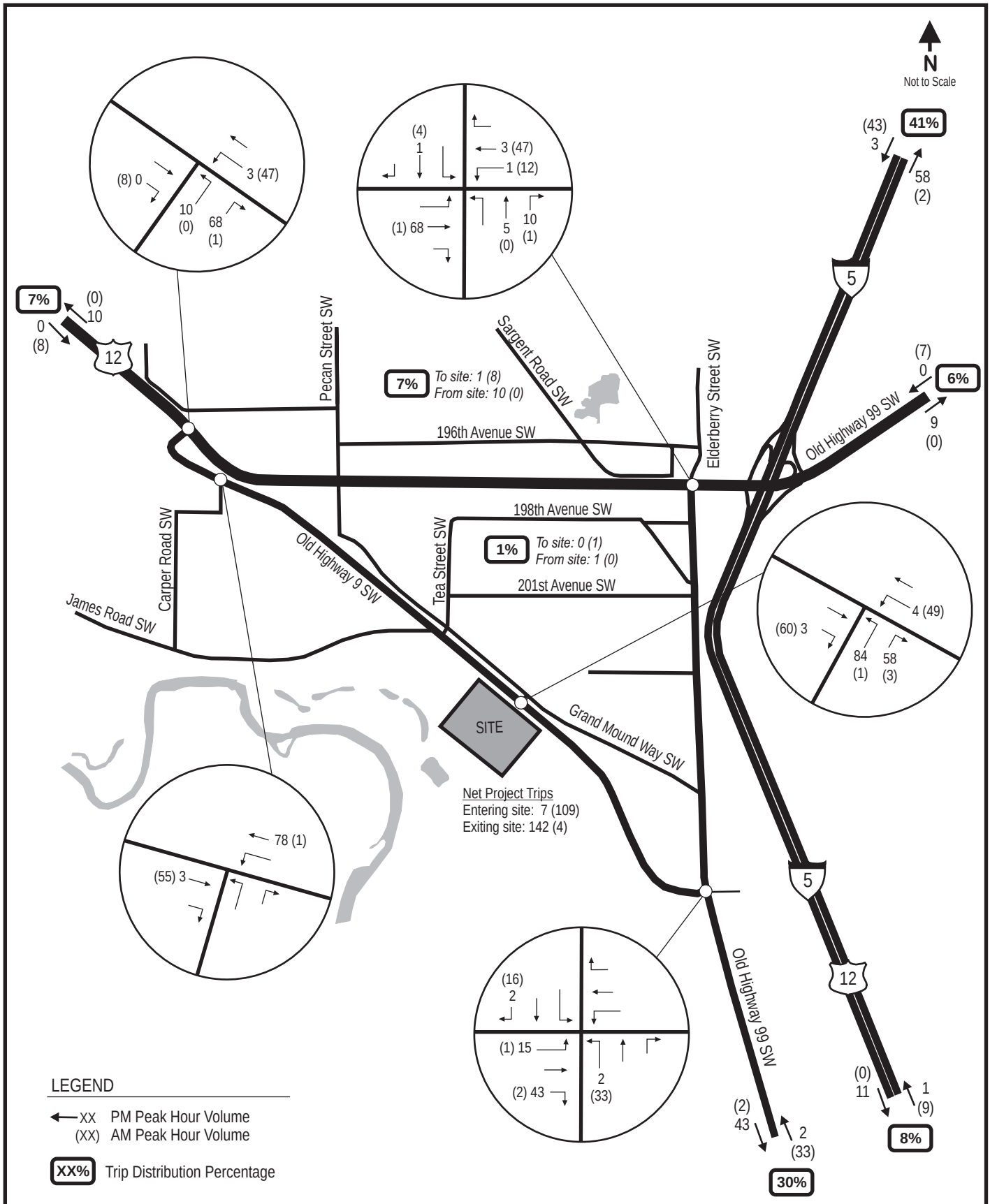

Figure 26

Department of Corrections
Westside Reception Center

NET PROJECT-GENERATED TRIPS
THURSTON COUNTY SITE

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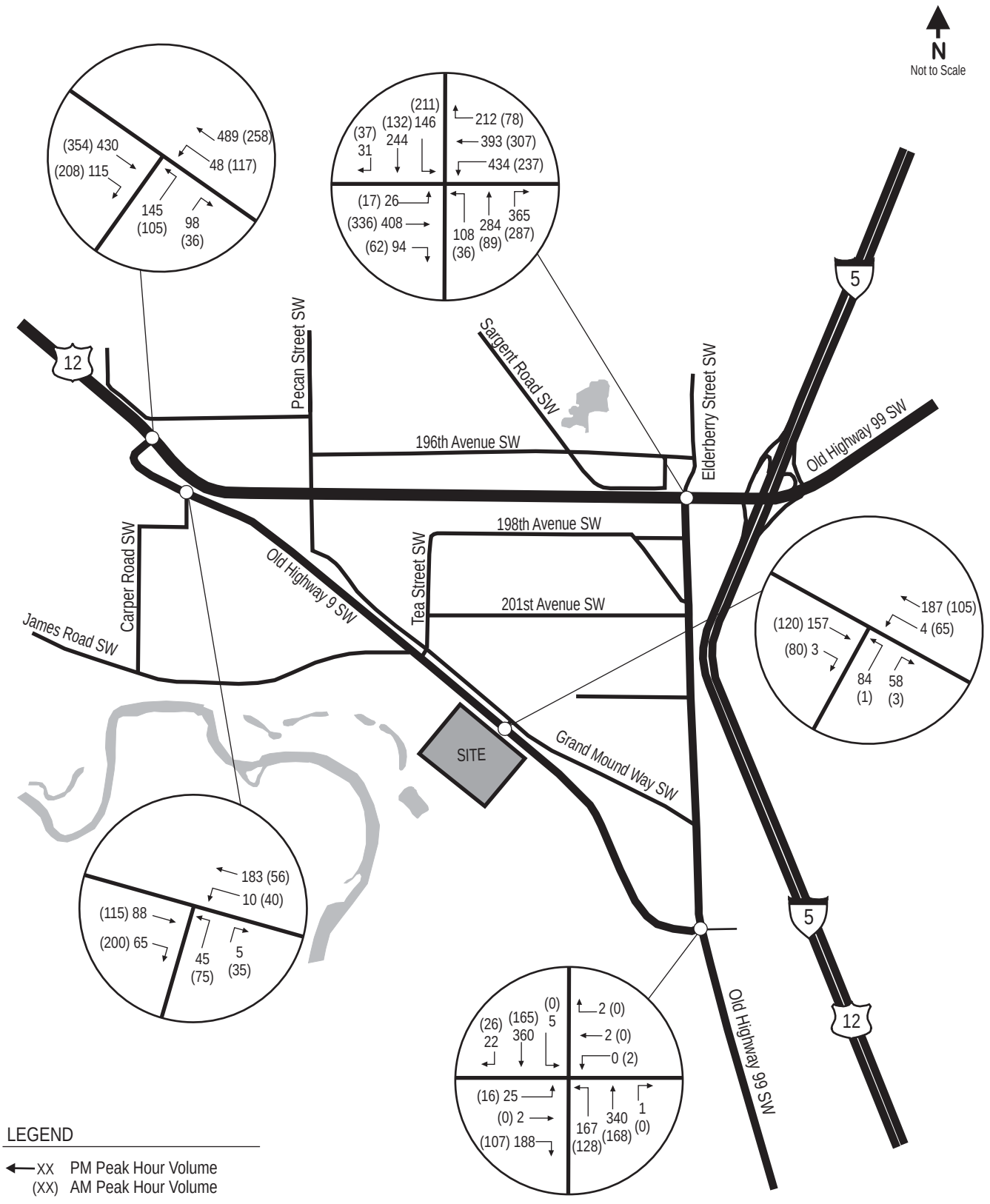

Department of Corrections
Westside Reception Center

Figure 27
2016 WITH PROJECT
TRAFFIC VOLUMES
THURSTON COUNTY SITE

heffron transportation, inc.

09.01.2011

3.3.3. Intersection Operations

In order to determine how the changes in traffic volumes described in the previous section would affect traffic operations in the study area, level of service analysis was performed for the 2016 with-project condition. Table 25 summarizes expected 2016 with-project levels of service; 2016 without-project results are also shown for comparison. The table shows that additional traffic forecast to be generated by the proposed reception center would add small amounts of delay to several locations; however, it is not projected to degrade levels of service at any of the study area intersections. In some cases, the project is forecast to reduce average delay for one or more movements. This occurs when the project adds trips to a movement (such as a right-turn or through movement) that has lower delay than other movements, and decreases the average delay per vehicle for the movement. It should also be noted that although the left-turn movement from Old Highway 9 to Old Highway 99 would operate at LOS E, the overall eastbound approach (left- and right-turns combined) would operate at LOS C (delay of 18.2 seconds per vehicle) with the project.

Table 25. Level of Service Summary – 2016 With-Project – Thurston County Site

	AM Peak Hour Conditions				PM Peak Hour Conditions			
	2016 Without-Project		2016 With-Project		2016 Without-Project		2016 With-Project	
Signalized Intersection	LOS [1]	Delay [2]	LOS	Delay	LOS	Delay	LOS	Delay
Old Hwy 99 SW / US 12 / Elderberry Street SW	D	41.5	D	41.0	D	39.8	D	42.3
Unsignalized Intersections	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Old Hwy 9 SW / Carper Road SW (overall)	A	4.7	A	4.7	A	2.5	A	2.1
WB Lefts from Old Hwy 9 to Carper Rd	A	3.8	A	4.0	A	0.7	A	0.5
NB turns from Carper Rd to Old Hwy 9	C	15.6	C	17.9	B	10.8	B	11.8
Old Hwy 9 SW / US 12 (overall)	A	3.7	A	4.5	A	2.9	A	3.9
WB Lefts from US 12 to Old Hwy 9	A	9.8	B	10.2	A	9.1	A	9.1
NB turns from Old Hwy 9 to US 12	C	16.9	C	19.9	C	19.2	C	18.8
Old Hwy 9 SW / Old Hwy 99 SW (overall)	A	3.9	A	4.2	A	3.7	A	4.7
EB Lefts from Old Hwy 9 to Old Hwy 99	B	16.2	C	18.4	E	41.4	E	48.9
EB Rights from Old Hwy 9 to Old Hwy 99	B	10.5	B	10.6	B	13.3	B	14.2
WB Turns from Private Dwy to Old Hwy 99	C	20.3	C	23.1	C	22.9	C	23.2
NB Left Turns from Old Hwy 99 to Old Hwy 9	A	8.0	A	8.2	A	9.0	A	9.0
SB Left Turns from Old Hwy 99 to Pvt. Dwy.	A	0.0	A	0.0	A	8.2	A	8.2

Source: Heffron Transportation, August 2011.

1. LOS = Level of service.

2. Delay = Average seconds of delay per vehicle.

3.3.4. VMT and Travel Time Analyses

To estimate VMT for reception center employees, travel distances (in miles) to the Thurston County site were determined using the same employee zip codes and approximate employee percentages used to develop the project trip distribution patterns. Estimates of VMT for transport trips were based on detailed transport schedule information provided by the DOC that reflects existing routes serving the

WCC. The total VMT for all employee and transport trips were calculated and summed to determine a total daily VMT estimate for the trips made to and from the site. The daily VMT estimate was factored to estimate an annual VMT, which is shown in Table 26. Annual VMT for each of the project sites is shown for comparison. Annual VMT are expected to range from about 5.88 million to about 6.85 million for the three site alternatives. The annual VMT for the Thurston County site alternative are projected to be lowest at about 5.88 million. For transport trips, the three sites are expected to have relatively similar annual VMT estimates—ranging from a low of about 215,290 (Bremerton) to a high of 222,070 (Mason County). These estimates are similar because many of the transport trips are quite long and the variation among the three sites is somewhat modest compared to overall trip length.

Total annual vehicle travel time is another measure that helps to compare the site alternatives. It compares the total amount of time that drivers would spend in vehicles traveling to and from the site alternatives. To estimate total passenger vehicle travel time, typical travel times (in minutes) from each of the zip codes described previously to the project site were determined. The total daily travel time for employee and transport trips were estimated and summed to determine a total daily travel time for trips made to and from each site. The total daily travel time was converted to vehicle-hours and then to annual vehicle travel time, which is also shown in Table 26. Annual vehicle travel time for each of the project site alternatives is shown for comparison. Annual passenger vehicle travel time are expected to range from about 140,670 (Thurston County) to about 166,050 (Bremerton) vehicle-hours.

Table 26. Annual VMT and Vehicle Travel Time Comparison – Thurston County Site

Measure (Trip Component)	Bremerton	Mason County	Thurston County
Annual Vehicle Miles Traveled (VMT)			
Employees	6,113,910	6,628,400	5,657,740
Transports	215,290	222,070	220,600
Total Annual VMT	*6,329,200*	*6,850,470*	*5,878,340*
Annual Vehicle Travel Time (veh-hours)			
Employees	161,960	158,330	136,550
Transports	4,090	4,150	4,120
Total Annual Vehicle Travel Time	*166,050*	*162,480*	*140,670*

Source: Heffron Transportation, Inc., August 2011.

3.3.5. Site Access and Internal Circulation

As shown on Figure 4, the Thurston County site plan reflects the use of two existing site access driveways on Old Highway 9. The primary access, previously used by the Maple Lane School, would serve as the primary access for the reception center. A secondary service access is located approximately 1,000 feet southeast of the primary access driveway. Operational analysis of the primary access driveway was performed for AM and PM peak hour conditions. Assuming that all project traffic would use the primary driveway, all movements at the site access are projected to operate at LOS B or better during the morning and evening peak hours.

The site access was also reviewed to determine if a left-turn pocket would be needed to serve trips entering the site from Old Highway 9. Left-turn storage guidelines published in the WSDOT *Design*

Manual[44] were reviewed with the projected 2016 with-project traffic volumes. Because the volume of background traffic on Old Highway 9 is projected to remain low, left-turn storage is not needed for the site access driveway.

The project site driveways on Old Highway 9 will also be required to provide minimum intersection sight distance for vehicles turning to and from the access. The WSDOT *Design Manual* also provides recommendations for intersection sight distance in Exhibit 1310-27a. Based on the existing speed limit of Old Highway 9 and the minimum standards, the access driveway requires a minimum of 700 feet of sight distance in both directions. Based on field observations, the two existing site driveways have adequate sight distance to meet these minimum requirements.

On-site circulation is planned to occur from the main access driveway with internal secondary connections to the bus yard, staff and public parking, and a vehicle service yard.

3.3.6. Traffic Safety

If located at the Thurston County site, the proposed reception center would have its primary and service access driveways at existing access locations on Old Highway 9. No new driveways are proposed. Both driveways provide minimum intersection sight distance (700 feet in both directions). Therefore, there are no specific safety concerns resulting from continued use of the existing driveways.

None of the study area intersections evaluated for the Thurston County site experienced unusual collision rates or patterns over the three-year analysis period from 2008 through 2010. However, WSDOT did note that there have been four fatal collisions at intersections along US 12 (including one at Old Highway 9 in May 2010). The reception center project would increase traffic volumes through the study area intersections and along US 12 and could contribute proportionally to future collision experience. Project traffic would represent about 1.5% of total entering future daily traffic at the Old Highway 9/US 12 intersection. Most of the project traffic would be making right turns from Old Highway 9 to US 12 or left turns from US 12 to Old Highway 9. Therefore, project traffic is expected to have less exposure to conflicting movements compared to other turns at this location.

New project traffic is expected to represent between 0.8% and 2.0% of total entering daily (24-hour) volumes at the other three study area intersections. Therefore, no significant adverse transportation safety impacts are anticipated with the proposed reception center project at the Thurston County site.

3.3.7. Transit

While it is possible that the proposed reception center project could generate some demand for transit, none is anticipated at this time since there is not an existing transit stop at or very near the proposed site location. As a result, the project is not expected to adversely impact transit service or facilities in the study area. It is possible that the DOC could work with a local transit provider, such as Twin Transit, to establish service for the facility. However, no such service is currently planned or funded.

[44] WSDOT Design Manual, July 2011.

3.3.8. Non-Motorized Facilities

While it is possible that the proposed reception center project could generate a few non-motorized trips, none are anticipated at this time. As a result, the project is not expected to adversely impact non-motorized facilities in the study area.

3.3.9. Parking Demand and Supply

Information provided by the DOC to estimate peak parking demand was described previously in *Section 3.1.9*. Table 27 summarizes the peak parking demand for each of the parking generators. The peak parking demand is expected to occur midday between 12:30 and 1:30 P.M. when all administrative staff are on site and there is an overlap of two custody-staff shifts. This would occur when custody staff working Shift 3 (expected to begin at 1:00 P.M.) arrive before custody staff working Shift 2 (expected to end at 1:10 P.M.) leave the site. During this time, the peak parking demand is projected to be 390 vehicles. This peak demand is expected to occur for less than an hour. Parking demand for the remainder of the day would range from about 65 vehicles overnight to about 315 vehicles during the early afternoon.

Table 27. Parking Demand Summary – Thurston County Site

Parked Vehicle Generator	Peak Parking Demand	Time of Day Peak Would Occur
Employee vehicles	368	12:30 to 1:30 P.M.
Visitor/Volunteer vehicles	15	5:30 to 8:00 P.M.
Transport & fleet vehicles	12	3:00 to 3:30 P.M.
Cumulative parking demand [1]	390	12:30 to 1:30 P.M.

Source: Heffron Transportation, August 2011.

1. The cumulative peak parking demand represents the largest number of vehicles parked on site at any one time, and assumes that parking spaces can be shared among the users. Because the peak parking demands for each of the user types occur at different times of the day, the cumulative peak parking demand does not equal the sum of the individual peak parking demands.

As described previously and as shown on Figure 4, the proposed reception center would construct about 400 parking spaces on site. This parking supply would be adequate to meet the projected peak parking demand. Therefore, no adverse parking impacts are anticipated.

3.3.10. Construction Traffic Impacts

Construction of the reception center at the Thurston County site is expected to require earthwork that would involve cut and fill of approximately 35,000 cy of material. However, most of this earthwork is expected to occur on-site (balancing the cut and fill amounts) and minimal off-site transport is expected. Since the site is somewhat limited with space, it is possible that some transport of material (about 5,000 cy) could occur. This material is expected to be moved using trucks that can carry 20 cy each and would result in about 313 truckloads (assuming a 1.25 fluff factor—the increase in soil volume due to removing it from the ground). The earthwork is expected to occur over several months with some periods of higher activity than others. If the transport of excavated materials were to occur across one month (21 working days), it would result in an average of approximately 15 truckloads per day. Each truckload would generate two trips (one inbound and one outbound) and would most likely occur during daytime hours (8:00 A.M. through 4:00 P.M.). Most construction transportation is stopped

by 4:00 P.M. to avoid unnecessary delay to truck drivers from peak hour congestion. Assuming transportation occurs over eight hours each workday, the earthwork for the Thurston County site alternative would generate an average of about four truck trips per hour (2 inbound, 2 outbound).

Building materials (including concrete for foundations, asphalt for parking facilities, and structural elements) would be also transported to the site regularly throughout the construction period. The number of deliveries each day would vary depending on the phase of construction. It is estimated that overall construction would require approximately 22 months (1.8 years).

Construction of the project would also require employees and equipment that would generate traffic to and from the site. Construction at the site would likely occur Monday through Friday. It is anticipated that construction workers would arrive at the construction site before the AM peak traffic period on local area streets and depart the site prior to the PM peak period; construction work shifts typically begin by 7:00 A.M. and end by 4:00 P.M., while the corresponding peak traffic periods typically occur slightly later. The number of workers at the project site at any one time would vary depending upon the nature and construction phase of the project. Based on past experience with construction of other corrections facilities, the number of construction employees on site is estimated to range from a low of 5 workers (during early site work) to a peak of about 175 workers (during periods with many trades working within the buildings). The presence of a temporary construction work force would also generate demand for parking spaces around the project site. It is expected that construction employees would be able to park in on-site staging areas or in new parking lots constructed on site for the project as they become available.

The proposed project would likely generate a noticeable amount of construction-related traffic on surrounding roadways. Construction worker vehicles and trucks carrying materials to the site would be most noticeable on Old Highway 9. The truck traffic is not expected to degrade operations of study area intersections during off-peak hours. A construction transportation management plan (CTMP) addressing site access, traffic control, hauling routes, construction employee parking, and pedestrian and bicycle control in the area would be prepared per Thurston County requirements. In addition, Thurston County may require mitigation for construction vehicle damage to roadways in the site vicinity.

3.4. No Action Alternative

It is assumed that the No Action Alternative reflects either 1) DOC does not select a site for the proposed Westside Prison Reception Center; or 2) DOC selects a site, however, funding is not appropriated by the Legislature for land acquisition, construction and operation of the proposed Westside Prison Reception Center. As a result, the following defines conditions for the No Action Alternative:

1. The existing reception center located at WCC would continue to serve as a reception center for western Washington.
2. The amount of space at WCC allocated to the reception center function would increase proportionally with increases in the number of prisoners entering the system.
3. With increases in the amount of space at WCC associated with the reception center function, either the long-term prison function at WCC would decrease proportionally or additional long-term incarceration capabilities would be constructed to meet the projected increased demand for bed space. Such additional facilities could be constructed at WCC, existing State correctional facilities, or at a new facility. Any of these actions would be the subject to subsequent SEPA review.

For the three site alternatives, the two undeveloped sites (Bremerton and Mason County) would be expected to remain undeveloped for the short term. Development of each could occur in the long term subject to City and County SEPA and permitting requirements. The Thurston County site is currently owned by the State of Washington and existing buildings would be expected to remain on site and vacant in the short term. In the long term, the State may identify a need and use for the site and its existing facilities. Re-use and subsequent development would be subject to the County's site-specific permit process and project-specific SEPA review process. For all three alternative sites, transportation conditions for the No Action Alternative were evaluated and are described in the *Affected Environment* section as the "without-project condition." The No Action Alternative would not generate new traffic and would not result in any new adverse impacts to the study areas defined for the three sites evaluated.

4. MITIGATION

This chapter describes the measures needed to mitigate the transportation impacts expected to result from the Westside Prison Reception Center at each of the alternative sites.

4.1. Mitigation of Construction Impacts for All Action Alternatives

To mitigate the short-term construction impacts, the project's contractor would prepare a Construction Transportation Management Plan per local jurisdiction requirements. This plan would document proposed construction haul routes, where contractors would park during various stages of construction, and any necessary elements to mitigate impacts on access and non-motorized transportation in the site area.

4.2. Mitigation of Long-term Impacts

4.2.1. Bremerton Site

The following summarizes the anticipated mitigation requirements for the Bremerton site.

- **Left-Turn Storage for Site Access:** Left-turn storage is recommended for the site access driveway. The left-turn pocket should be 12-feet wide and have a minimum of 100-feet of storage (with a 50-foot buffer before starting the taper) and a 300-foot taper. Southeast of the site access, widening would also be required to transition back to two lanes. In total, this could require widening SW Lake Flora Road for about 750 feet (450 feet to the northwest and 300 feet to the southeast).

- **Access Location for Sight Distance:** The access driveway should be located so that it can provide a minimum of 700 feet of sight distance in both directions.

- **Frontage Improvements:** City of Bremerton staff has indicated the *Bremerton Municipal Code (BMC) Title 11* would require full street improvements and dedication of public right-of-way along the project site frontage. Frontage improvements are typically required along the entire street frontage of the parcel to be developed. The length of the actual frontage improvements for this alternative site will depend on the size and location of the parcel selected for development. The code required frontage

improvements are detailed in the "Functional Roadway Classification" table that is part of the *Bremerton Road Standards*.[45] For SW Lake Flora Road—a minor arterial—half-street improvements could consist of curb, gutter, and sidewalk, a 5-foot bike lane, a 6-foot planter strip, and a 12-foot travel lane. City staff has also noted that a subarea plan currently being developed (for the SKIA) will likely contain different standards for frontage requirements, allowing more flexibility for development. The new standards will have an emphasis on Low Impact Development (LID), and will be available for review in fall 2011. City staff indicated that some form of pedestrian walkway will likely be required with either the existing standards (sidewalk) or the updated standards. With the required frontage improvements, non-motorized access in the site vicinity would be improved with the project.

- **Traffic Impact Fees:** No traffic mitigation fees would be required.

4.2.2. Mason County Site

The following summarizes the anticipated mitigation requirements for the Mason County site.

- **Left-Turn Storage for Site Access:** Left-turn storage is recommended for the site access driveway. The left-turn storage lane should be 12-feet wide and have a minimum of 100-feet of storage (with a 50-foot buffer before starting the taper) and a 270-foot taper. West of the site access, widening would also be required to transition back to two lanes to the west. In total, this could require widening SR 102 for about 720 feet (420 feet to the east and 300 feet to the west).

- **Access Location for Sight Distance:** The access driveway should be located so that it can provide a minimum of 630 feet of sight distance in both directions.

- **Frontage Improvements:** WSDOT staff has indicated that project site frontage along SR 102 should be widened to provide the minimum shoulder width. Based on *WSDOT Design Manual*, a shoulder width of three feet would be required.

- **Traffic Impact Fees:** No traffic mitigation fees would be required.

4.2.3. Thurston County Site

The following summarizes the anticipated mitigation requirements for the Thurston County site.

- **Frontage Improvements:** Thurston County staff has indicated that, in consideration of the DOC granting space on the parcel (currently occupied by Maple Lane School) to Thurston County for a municipal water supply reservoir, Thurston County will assume the responsibility for building frontage improvements along Old Highway 9

[45] City of Bremerton Road Standards, Functional Roadway Classification, 10/22/2002.

for the proposed reception center. This would include upgrades or improvements to the Prairie Creek Bridge.[46]

- **Traffic Impact Fees:** Within Thurston County, traffic mitigation fees are determined through the SEPA review process; specifically under the authority of WAC 197-11-660 (Substantive authority and mitigation) and the Concurrency Ordinance (Chapter 17.10) adopted under Chapter 17.09.150 (Substantive Authority) of the Thurston County Code. The fees within the Grand Mound area were recently updated to account for developer funded frontage improvements that have been completed as well as incorporating current construction cost data. The proposed reception center is projected to add PM peak hour traffic to two corridors with planned improvements—Old Highway 99 and US 12 (Grand Mound Intersection Improvements). The following summarizes the estimated impact fees for each:[47]

    1. Based on the project traffic assignments, the Reception Center is forecast to add 98 PM peak hour trips on the affected segments of US 12. The County Road Project (CRP) UGA – US 12 – Grand Mound Intersection Improvement fee rate is $1,188 per new trip. Therefore, the fee for this project would be $116,424.

    2. There are four CRP projects along Old Highway 99 that would be impacted by the proposed reception center traffic:
       61304 – 201st to US 12: rate of $250 per trip x 17 trips = $4,250
       61332 – 203rd to 201st: rate of $492 per trip x 17 trips = $8,364
       61442 – Grand Mound UGA to Great Wolf: rate of $742 per trip x 62 trips = $46,004
       61470 – Great Wolf Lodge to 203rd: rate of $525 per trip x 17 trips = $8,925

    Based on fees described for each project above, the total traffic impact fee for the reception center is estimated at **$183,967**.

    WSDOT is no longer collecting fees for the I-5 Grand Mound Interchange Replacement and Reconfiguration project nor for any other nearby WSDOT project. Therefore, no fees would be due to WSDOT for this alternative. [48]

4.3. No Action Alternative

No mitigation is expected to be required for the No Action Alternative.

[46] Email communication, Scott Lindblom – Engineering Program Manager/Design, Thurston County Public Works, August, 11, 2011.
[47] Fee rates and trip allocation method provided by Scott Lindblom – Engineering Program Manager/Design and Kevin Hughes – Development Review, Thurston County Public Works, August, 12, 2011.
[48] Email communication, Dale C. Severson, P.E. Development Services Engineer - WSDOT Olympic Region, October 6, 2011.

5. UNAVOIDABLE ADVERSE IMPACTS

5.1. All Action Alternatives

The proposed reception center would generate an increase in daily and peak hour traffic that could slightly increase delay at study area intersections. However, the increases in delays are not projected to be significant.

5.2. No Action Alternative

No adverse impacts are anticipated at any of the three site alternatives with the No Action Alternative.

6. SUMMARY

Table 28 and Table 29 provide transportation comparisons and a summary of mitigation, respectively, for the three alternative sites for the Westside Prison Reception Center.

Table 28. Transportation Comparison

Criteria	Bremerton	Mason County	Thurston County
Daily Traffic Increase – Net increase in daily trips	994	994	440
AM Peak Hour Traffic Increase – Net increase in AM peak hour trips	149	149	113
PM Peak Hour Traffic Increase – Net increase in PM peak hour trips	149	149	149
Percent traffic increase – Number of study area intersections that would experience more than 5% increase in peak hour traffic due to the project.	2 – AM 1 – PM	2 – AM 2 – PM	3 – AM 3 – PM
Level of service in area – Number of study area intersections that would operate at LOS E or F during either the AM or PM peak hours with the project.	0 – AM 0 – PM	0 – AM 0 – PM	0 – AM 0 – PM
Level of service impact – Number of study area intersections operating at LOS E or F in the future that would experience an increase in delay of 5 or more seconds per vehicle due to the project.	0 – AM 0 – PM	0 – AM 0 – PM	0 – AM 0 – PM
Vehicle-miles traveled (VMT) – Total annual VMT	6,329,200	6,850,470	5,878,340
Vehicle hours traveled– Total annual passenger vehicle travel time	166,050	162,480	140,670
Transit – Number of bus routes within 0.25 miles of the site	0	0	0
Parking Demand – Cumulative peak parking demand.	390	390	390
Parking Supply– Number of on-site parking spaces proposed.	400	400	400
Construction truck traffic – Number of truck loads required for cut-and-fill activities.	0	0	208

Table 29. Transportation Mitigation Summary

Mitigation Element	Bremerton	Mason County	Thurston County
Construction Transportation Management Plan	Prepare a Construction Management Plan to detail construction haul routes, contractor parking, access and non-motorized transportation.	Same as for Bremerton	Same as for Bremerton
Other construction transportation mitigation	None	None	None
Frontage Improvements	Curb, gutter, and sidewalk, a 5-foot bike lane, a 6-foot planter strip, and a 12-foot travel lane based on current standards.	Widen to provide the minimum shoulder width (3-feet based on WSDOT Design Manual).	None (to be completed by Thurston County)
Other transportation mitigation	The left-turn pocket at site access on SW Lake Flora Road: 12-feet wide, minimum 100-feet storage, 50-foot buffer, plus 300-foot taper. Locate access driveway to provide minimum of 700 feet of sight distance in both directions.	The left-turn pocket at site access on SR 102: 12-feet wide, minimum 100-feet storage, 50-foot buffer, plus 270-foot taper. Locate access driveway to provide minimum of 630 feet of sight distance.	None
Traffic Impact Fee	None	None	The total traffic impact fee for the reception center is estimated at $183,967.

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WSDOT, *I-5 - Grand Mound to Maytown Stage Two Interchange Replacement Project*, 2011.

APPENDIX A

LEVEL OF SERVICE DEFINITIONS

Levels of service (LOS) are qualitative descriptions of traffic operating conditions. These levels of service are designated with letters ranging from LOS A, which is indicative of good operating conditions with little or no delay, to LOS F, which is indicative of stop-and-go conditions with frequent and lengthy delays. Levels of service for this analysis were developed using procedures presented in the *Highway Capacity Manual 2010* (Transportation Research Board, April 2011).

Level of service for signalized intersections is defined in terms of delay. Delay can be a cause of driver discomfort, frustration, inefficient fuel consumption, and lost travel time. Specifically, level of service criteria are stated in terms of the average delay per vehicle in seconds. Delay is a complex measure and is dependent on a number of variables including: the quality of progression, cycle length, green ratio, and a volume-to-capacity ratio for the lane group or approach in question. Table A-1 shows the level of service criteria for signalized intersections from the *Highway Capacity Manual 2011*.

Table A-1. Level of Service Criteria

Level of Service	Average Delay Per Vehicle	General Description
A	Less than 10.0 Seconds	Free flow
B	10.1 to 20.0 seconds	Stable flow (slight delays)
C	20.1 to 35.0 seconds	Stable flow (acceptable delays)
D	35.1 to 55.0 seconds	Approaching unstable flow (tolerable delay—occasionally wait through more than one signal cycle before proceeding.
E	55.1 to 80.0 seconds	Unstable flow (approaching intolerable delay)
F	Greater than 80.0 seconds	Forced flow (jammed)

Source: Transportation Research Board, Highway Capacity Manual 2010, 2011.

For unsignalized intersections, level of service is based on the average delay per vehicle for each turning movement. The level of service for a two-way, stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. Delay is related to the availability of gaps in the main street's traffic flow, and the ability of a driver to enter or pass through those gaps. The delay at an all-way, stop-sign (AWSC) controlled intersection is based on saturation headways, departure headways, and service time using procedures in *Chapter 17 – Unsignalized Intersections, Applications – AWSC Intersections* of the *Highway Capacity Manual 2010* (Transportation Research Board (TRB), 2011). Table A-2 shows the level of service criteria for unsignalized intersections from the *Highway Capacity Manual 2010*.

Table A-2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Delay (seconds per vehicle)
A	Less than 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	Greater than 50.0

Source: Transportation Research Board, Highway Capacity Manual 2011, 2011.

APPENDIX B

DOC WESTSIDE RECEPTION CENTER
TRIP GENERATION ASSUMPTIONS

heffron transportation, inc.

TECHNICAL MEMORANDUM

Project: DOC Westside Prison Reception Center

Subject: Trip Generation Assumptions

Date: July 18, 2011

Author: Laura Van Dyke, P.E., P.T.O.E. LVD

The Department of Corrections (DOC) is evaluating three site alternatives for a new prison reception center with 1,024 beds. The sites being evaluated are located in Bremerton, Mason County, and Thurston County. This memorandum summarizes the assumptions used to estimate vehicle trip generation and parking demand expected from the new facility at each site. These assumptions consider trips associated with employees, daily transports, medical transports, releases, visitors, volunteers, deliveries, and others. Assumptions for each of these trip types are summarized in Section 1 of this memorandum.

In addition to the overall reception center trip generation assumptions, this memorandum summarizes assumptions specific to characteristics of the Mason and Thurston County sites.

The Mason County site being evaluated for the new reception center is very close to the Washington Corrections Center (WCC), which serves as the DOC's existing reception facility. As a result, traffic volumes near the Mason County site could be affected by the changes to the WCC when existing reception activities are removed and the facility serves only as a general-population prison. Therefore, we have also compiled operational information about the WCC to assess potential trip generation effects. The operational information for the WCC is summarized in Section 2 of this memorandum.

The Thurston County site being evaluated for the reception center was long occupied by the Maple Lane School juvenile rehabilitation facility, which was recently closed in June 2011. We have calculated the net change in traffic with the planned reception center at this site by first accounting for trips that have historically been generated by the Maple Lane School. Section 3 of this memorandum summarizes operational information we have compiled to estimate past trip generation at the Maple Lane School and determine appropriate trip credit amounts at this site.

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1. Reception Center Trips

1.1. Employee Trips

(Sources: Percentage of employees per shift and shift times, Doug Cole, DOC Superintendent at Cedar Creek Corrections Center, June 22, 2011; Number of employees, Jack Olson, DOC Project Director, July 14, 2011)

Custody Employees

a. A total of 299 custody employees for the 24/7 operation, with approximately 239 employees (80%) working on an average day.

b. 43 employees (18%) would work Shift 1 from 8:50 P.M. to 5:20 A.M.

c. 105 employees (44%) would work Shift 2 from 5:10 A.M. to 1:10 P.M.

d. 91 employees (38%) would work Shift 3 from 1:00 P.M. to 9:00 P.M.

e. All custody employees would remain on site during their entire shift.

Non-Custody Employees

a. 103 employees on site Monday through Friday.

b. 94 employees would be administrative and would work from 7:00 A.M. to 5:00 P.M.

c. 9 employees would work in food services with 4 employees working from 3:30 A.M. to 11:30 A.M. and 5 employees working from 11:00 A.M. to 7:00 P.M.

d. According to WCC staff, some administrative employees could leave the site during the day for meetings, lunch, or to run errands. It was assumed that 3% of the employees working the administrative shift (between 7:00 A.M. and 5:00 P.M.) would leave the site and return once on an average day. This translates to about 3 employees generating 6 additional daily trips (3 trips from the site, and 3 trips to the site).

Health Services Employees

a. 76 health services employees working at the site on an average day including physicians, dentists, pharmacists, support staff, and nurses.

b. 46 employees would work from 7:00 A.M. to 5:00 P.M. Monday through Friday.

c. 30 nursing employees for the 24/7 operation, with approximately 24 nurses (80%) working on an average day.

d. 5 nurses (20%) would work Shift 1 from 8:50 P.M. to 5:20 A.M.

e. 11 nurses (45%) would work Shift 2 from 5:10 A.M. to 1:10 P.M.

f. 8 nurses (35%) would work Shift 3 from 1:00 P.M. to 9:00 P.M.

e. According to WCC staff, all health service employees would remain on site during their entire shift.

For each of the three sites, all employees are assumed to drive alone to and from work each day. Although a small amount of transit use and carpooling could occur at each of the sites, this

assumption provides for a conservatively high estimate of project-generated traffic. The potential impacts to other travel modes, such as transit, will be addressed in the appropriate sections of the EIS.

1.2. Transports

(Source: Kay Priest, DOC Transportation, June 22, 2011)

a. On a typical day, approximately 3 transport buses (40-passenger) would depart the reception center between 4:30 and 7:00 A.M. to pick up offenders at multiple locations, and would return to the reception center between 10:00 A.M. and 3:00 P.M. For the Bremerton and Thurston County sites, buses would be stored on site. For the Mason County site, buses would be stored at the existing bus barn located at the nearby WCC.

b. There would be a total of 6 additional transports each day associated with work release, county drops, regional transport, sheriff trips, and Immigration and Customs Enforcement (ICE). These trips would occur in vans and passenger vehicles between 6:00 A.M. and 5:00 P.M.

1.3. Medical Transports

(Source: Kay Priest, DOC Transportation, June 22, 2011)

a. Approximately 3 medical transports would occur on an average weekday between 6:00 A.M. and 5:00 P.M. The medical trips would typically go to Harrison Hospital in Bremerton for the Bremerton site, Mason General Hospital for the Mason County site, and either Providence Saint Peter's Hospital or Capital Medical Hospital in Olympia for the Thurston County site. Occasional trips would go directly to Harborview Hospital in Seattle.

1.4. Releases

(Source: Scott Russell, DOC Superintendent at Washington Corrections Center, June 22, 2011)

a. Approximately 5 persons would be released on an average day between 7:00 A.M. and 5:00 P.M. All would be picked up in a vehicle by a family member, friend, another agency, a community corrections officer (CCO), or ICE. No persons released from the facility would be allowed to walk from the site.

1.5. Visitors

(Source: Attorney visit information, Scott Russell, DOC Superintendent at Washington Corrections Center, June 22, 2011; WCC visitation information, Scott Russell, DOC Superintendent at Washington Corrections Center, July 1, 2011)

Visitors include attorneys and family members visiting the offenders and also persons coming to visit employees at the reception center. Because most offenders would only stay at the reception center for about four weeks, and it takes about that long for a person to obtain clearance to visit an offender, most visitation for the reception center would occur by video. Visitors would access video service using a computer at an off-site location. However, up to 20% of the population (or up to 200 offenders) could stay at the reception center for up to six months and could be eligible for visitation.

a. Attorneys would come to the site Monday through Friday between 8:00 A.M. and 5:00 P.M. There are about 12 attorney visits per month at WCC; therefore, it was assumed that there could be 1 attorney visit per day at the reception center.

b. Visitation for eligible offenders is expected to occur at a similar rate and on similar days as the existing WCC. As described in Section 2, the visitation rate at the WCC is about 1.5 monthly visits per bed. Applying this visitation rate to the eligible offenders at the reception center translates to about 300 visitors per month. Visitation is expected to occur on Fridays, Saturdays, Sundays, and Mondays between 10:00 A.M. and 8:00 P.M. Therefore, there could be about 20 visitors per visitation day (during approximately 16 visitation days per month). Similar to WCC, there would be two visitation sessions per day – Session 1 would occur between 10:15 A.M. and 3:00 P.M. and Session 2 would occur between 4:15 P.M. and 7:45 P.M., with approximately 10 visitors at each session. According to WCC staff, visitors typically arrive in pairs; therefore, a conservative rate of 1.5 visitors per vehicle was assumed (Note: a lower number results in a larger number of vehicles). Based on these assumptions, there are projected to be about 7 vehicles arriving and departing the site for each session.

c. Professional visits for reception center employees are expected to occur Monday through Friday between 8:00 A.M. and 5:00 P.M. It is estimated that about 15 persons would visit the site on an average day and would remain on site between two and four hours each.

1.6. Volunteers

(Source: Scott Russell, DOC Superintendent at Washington Corrections Center, June 22, 2011)

There are expected to be approximately 10 volunteers on an average weekday. These would likely include faith-based volunteers and volunteers representing organizations such as Alcoholics Anonymous, Narcotics Anonymous, veterans, and the tribes. Volunteers could be at the reception center between 7:00 A.M. and 8:00 P.M., with most coming in the evening between 6:00 P.M. and 8:00 P.M. It was assumed that each volunteer would remain on site for two hours.

1.7. Deliveries

(Source: Scott Russell, DOC Superintendent at Washington Corrections Center, June 22, 2011)

Deliveries to the reception center would include food products, FedEx, UPS, offender property, donated products, pharmacy, and miscellaneous items. It is estimated that there could be 10 deliveries per day. Food deliveries (about 5 per day) would occur between 7:00 A.M. and 10:00 A.M. The other 5 daily deliveries would occur between 7:00 A.M. and 3:00 P.M.

1.8. Other Trips

(Source: Scott Russell, DOC Superintendent at Washington Corrections Center, June 22, 2011)

It is estimated that there could be up to 15 additional "other" trips each day occurring between 5:00 A.M. and 9:00 P.M. These trips could include recycling, garbage, mail, death-bed visits, local court, polygraph testing, urine analysis, and additional ICE trips.

2. WCC Trip Changes

(Source: WCC visitation information, Scott Russell, DOC Superintendent at Washington Corrections Center, July 1, 2011; Number of beds at WCC, Washington Corrections Center 2010 Facility Information, Scott Russell, DOC Superintendent at Washington Corrections Center)

When the reception center activities are removed from the existing WCC site, all of the reception center beds would be converted to general-population prison use. Most vehicle trips to the WCC are expected to remain the same as existing with this change; however, two types of trips—employee and visitor—were examined to determine if any modifications to background traffic volumes near the Mason County site would be needed due to this conversion.

The number of employees needed for WCC as a single general-population prison is expected to be about 10% less than the existing condition. This translates to a reduction of about 50 employees. When spread over the different shifts, this employee reduction would not significantly change the number of trips generated by the WCC. Therefore, it is assumed that employee-generated traffic volumes near the Mason County site will not be reduced at the WCC.

There were about 1,900 visitors per month at the WCC between June 2010 and June 2011. There are 1,298 beds at WCC; which are for both general-population offenders and offenders at the reception center. Because offenders at the reception center typically remain on the WCC site between 65 and 80 days (longer than expected at the new reception center), most qualify for visitation. Therefore, the visitation rate for the WCC is approximately 1.5 monthly visits per bed (1,900 visitors per month/1,298 beds). Converting all of the beds at the WCC to general-population offenders is not expected to increase the average number of offenders at the WCC and the number of visitors is expected to remain similar to existing. Therefore, the background traffic volumes near the Mason County site will be assumed to remain the same as existing when WCC operates as a single general-population prison.

3. Maple Lane School Trips

(Source: Randy Sparks, Department of Social and Health Services, July 1, 2011)

As described previously, the net change in traffic with the planned reception center at the Maple Lane School (Thurston County) site was calculated by first accounting for trips that have historically been generated by the Maple Lane School. The following information describes the most-recent peak use at the Maple Lane School.

3.1. Maple Lane School Program

The Maple Lane School was recently operated by the Department of Social and Health Services. It was a 300-bed medium/maximum security facility that provided treatment services and education for juvenile male offenders that closed in June 2011.

3.2. Employee Trips

a. A total of 268 employees worked three typical shifts (8:00 A.M. to 4:00 P.M.; 4:00 P.M. to midnight; midnight to 8:00 A.M.) with some scheduled overlap for better transitions.

b. 54 employees (20%) worked the graveyard shift and were assumed to be on site from about 11:50 P.M. to 8:00 A.M.

c. 107 employees (40%) worked the day shift and were assumed to be on site from 7:50 A.M. to 4:00 P.M.

d. 107 employees (40%) worked the swing shift and were assumed to be on site from 3:50 P.M. to midnight.

3.3. Transport Trips

DSHS's transportation unit travelled to Maple Lane School approximately three-to-four times per week. It was assumed that one transport trip occurred on an average weekday during the day shift.

3.4. Medical Transport Trips

Maple Lane School had medical care on campus and would transport offenders off campus for emergencies, which would occur once or twice per month. No medical trips were assumed for an average weekday at the Maple Lane School.

3.5. Releases

There were 13 releases at the Maple Lane School in the six-month period between January and June 2011. No releases were assumed for an average day at the Maple Lane School.

3.6. Visitors

Except for special arrangements, all visits to the Maple Lane School occurred on Saturdays and Sundays. Therefore, no visitor trips were assumed for an average weekday at the Maple Lane School.

3.7. Volunteers

Maple Lane School had an average of 65 volunteers per month, or about two per day. It was assumed that two volunteers came to the school site on an average weekday during the day shift.

3.8. Deliveries

Maple Lane School had an average of five deliveries per weekday. All five deliveries were assumed to occur on an average weekday during the day shift.

3.9. Other Trips

Other trips included laundry and garbage pickup, which occurred about twice per week each. It was assumed that one of these trips occurred on an average weekday at the Maple Lane School.

LSV/jab/tsm

APPENDIX I

Utilities Technical Report

Technical Report for Draft EIS

PREPARED FOR:

Washington State Department of Corrections

PROJECT:

DOC Westside Reception Center
AHBL No. 210533.10

PREPARED BY:

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REVIEWED BY:

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Principal

DATE:

November 2011

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SECTION 1. INTRODUCTION

Total male prison confinement in Washington State is currently 99 percent of capacity, and the Washington Caseload Forecast Council predicts the male prison population in the state of Washington will increase in the future. Additionally, the Washington State Legislature has established the goal of closing old and inefficient prison facilities (including the recently closed McNeil Island Corrections Center) to increase efficiency and reduce overall long-term operational costs.

In an effort to provide additional prison bed capacity and improve the efficiency of existing correctional facilities, the Washington State Department of Corrections (DOC) has determined that the existing reception center functions conducted at a portion of the Washington Corrections Center (WCC) near Shelton should be returned to prison use to provide additional capacity for male offenders, and that a new facility designed specifically for reception center use be constructed in western Washington. WCC was originally designed as a prison facility and does not allow for efficient performance of reception center functions. As a result, DOC has started the siting, EIS, and planning processes for a new reception center. While the Washington State Legislature provided funding for site selection and pre-design, funds have not yet been authorized for land acquisition, final design, permitting, construction, operation, and maintenance of the proposed Westside Reception Center.

A reception center is the first place offenders go after sentencing. Offenders are brought to the facility from local jails throughout Washington. During the reception process, offenders are assessed for physical and mental health, security and management needs, and other needs such as education and chemical dependency treatment. Long-term correctional placement is determined after the assessment and offenders are transported from the reception center to the assigned facility for long-term incarceration. The proposed 356,000-square foot Westside Reception Center facility will provide space for 1,024 beds and reception center services. The facility would manage all male offenders admitted to the prison system in the state of Washington for a new conviction, and could also house offenders moving from one facility to another, or offenders with six months or less to release to the community.

This Technical Report for the EIS analyzes the environmental conditions associated with three site alternatives being considered as the location of the proposed Westside Reception Center.

SECTION 2. EXISTING CONDITIONS

2.1 BREMERTON SITE

The Bremerton Site is presently undeveloped. The site is vegetated with mature trees and has been previously logged. The topography in the site is slightly sloping, with the highest elevation at 440 feet near the northeast corner, and the lowest point at 350 feet near the northwest corner.

Soil conditions have been determined to primarily consist of glacial till with possibly some areas of recessional outwash. Glacial till and recessional outwash soil types have been found to have properties that are generally favorable for site development if placed in proper conditions. Engineering properties of glacial till soils is not supportive of infiltration of stormwater.

It is anticipated that primary vehicular access to the site would be from SW Lake Flora Road; there are currently no access drives to the site off SR 3, which is a state highway.

2.1.1 Water

The City of Bremerton is the purveyor of water utilities to properties within its boundary, including the Bremerton Site. Currently, there is no water service provided to this site. The nearest water service connection is approximately 2.2 miles from the site on SR 3 near the Bremerton Airport. The City has three wells that provide 1,224,000 gallons per day (gpd). The current peak demand is 550,000 gpd. The City also maintains a booster fire pump system. This site falls within the SKIA boundary, and therefore water infrastructure improvements will be required to follow the SKIA Subarea Plan.

2.1.2 Sanitary Sewer

The City of Bremerton is the purveyor of sanitary sewer utilities to properties within its boundary, including the Bremerton Site. The City of Bremerton's main waste water treatment plant in Gorst has capacity to accept waste water from the Westside Reception Center. However, the plant is located 9 miles away. Currently, there are no sanitary sewer services provided to this site, and there are no planned improvements near the site. The nearest sanitary sewer connection is approximately 5.3 miles from the site to the north near the Olympic Industrial Park. At this location there are two sewage lagoons providing 72,500 gpd of treatment capacity. The current demand at this facility is 27,000 gpd. This site falls within the SKIA boundary, and therefore sewer infrastructure improvements will be required to follow the Sewer Urban Growth Area Planning - SKIA document.

2.1.3 Stormwater

The City of Bremerton is the purveyor of storm utilities to properties within its boundary, including the Bremerton Site. Currently, there is no storm service provided to this site and there are no planned improvements near the site. The natural drainage is sheet flow to the south to undeveloped properties. This site falls within the SKIA boundary, which has an emphasis on using Low Impact Development strategies. This can be difficult on a site with Glacial till soils.

2.1.4 Natural Gas

The natural gas service purveyor for the Bremerton Site is Cascade Natural Gas. There is currently no natural gas service provided to the site. The natural gas service connection is approximately 1 mile from the site to the southwest on Lake Flora Road. The purveyor has stated that their gas supply is not sufficient to provide uninterruptible gas service for the Westside Reception Center.

2.2 MASON COUNTY SITE

The Mason County Site is currently undeveloped. The site is vegetated with mature trees and has been previously logged for timber. The topography of the site is generally level, with the highest elevation at 340 feet near the southeast corner, and the lowest point at 300 feet near the northwest corner.

Soil conditions have been determined to primarily consist of Grove gravelly sandy loam soils over most of the site, and Lystair loamy soils in the northeast corner of the site. These soil types have been found to have properties that are generally favorable for site development if placed in proper conditions. Engineering properties of Grove and Lystair soils is generally supportive of infiltration of stormwater if ground water does not inhibit the infiltration characteristics.

Vehicular access to the site is from Dayton Airport Road (SR 102), a state highway.

2.2.1 Water

The City of Shelton is the purveyor of water utilities to the Mason County Site. The City currently has adequate water rights to accommodate the next 20 years of planned development. Current demand is approximately 1,250,000 gpd. A 1.3 million gallon reservoir is included in the City's 6-year Capital Improvement Projects. Water service is currently planned to be extended to the Washington State Patrol property approximately 1 mile from the site. This service has been designed but is not yet funded.

2.2.2 Sanitary Sewer

The City of Shelton is the purveyor of sanitary sewer utilities to the Mason County Site. Sewage is treated via a Water Reclamation Plant. At this time, the plant is operating at roughly 50 percent of the 400,000 gpd plant capacity. The Washington Correctional Center (WCC), just southwest of the site, has a Utility Services Agreement with the City for an average annual flow of 200,000 gpd. **The combined flow from the** Westside Reception Center and WCC will exceed 200,000 gpd. The waste water treatment plant is required to design an expansion once it reaches 85 percent of its capacity. This project will not put the City of Shelton waste water treatment plant over the 85%. Currently, sanitary sewer service is provided to the proximity of the site on SR 102, consisting of pressure sewer main that is capable of accepting wastewater from the new Westside Reception Center.

2.2.3 Stormwater

Currently, there is no storm service provided to this site and there are no planned improvements near the site. The natural drainage is infiltration on the site.

2.2.4 Natural Gas

The natural gas service purveyor for the Mason County Site is Cascade Natural Gas. Natural gas service is currently provided to the proximity of the site on SR 102. The purveyor has stated that their gas supply is not sufficient to provide uninterruptible gas service for the Westside Reception Center.

2.3 THURSTON COUNTY SITE

The Thurston County Site is developed with multiple structures that were associated with the Maple Lane Juvenile Facility that formerly occupied the site. Approximately 32 buildings, totaling approximately 240,000 square feet in building area, are currently located on the site. A staff parking lot accommodating approximately 200 parking spaces is located in the central portion of the site, outside the perimeter fencing. Mature trees are located around the perimeter of the site, along the main entrance driveway, and around some interior buildings. Primary vehicular access to the site is from Old Highway 9 SW.

The topography in the site is generally level, with the highest elevation at 162 feet near the northern corner, and the lowest point at 160 feet near the southern boundary. There is an approximate 25-foot elevation change between the southern boundary of the site and offsite wetlands and floodplain associated with Prairie Creek.

Soil conditions have been determined to primarily consist of Spanaway gravelly sandy loam soils. Spanaway gravelly sandy loam soil types have been found to have properties that are generally favorable for site development if placed in proper conditions. Engineering properties of Spanaway gravelly sandy loam soil is generally supportive of infiltration of stormwater if ground water does not inhibit the infiltration characteristics.

2.3.1 Water

Thurston County is the purveyor of water utilities to the Thurston County Site. Currently, two onsite water wells and above ground tanks supply the site with domestic water and fire protection water, but do not have the capacity to supply the new Westside Reception Center. The closest connection to the existing public water supply is 1.4 miles from the site, located to the northwest on Old Highway 99. The City has capacity to provide 1,300,000 gpd. The current peak demand is approximately 400,000 gpd. There are no planned improvements near the site.

2.3.2 Sanitary Sewer

Public sewer utilities are currently provided to the site as a vacuum system. The Thurston County waste water treatment plant is nearly at its capacity of 380,000 gpd. It does not have capacity to accept waste water from the Westside Reception Center without expansion. There is a planned future expansion to 760,000 gpd.

2.3.3 Stormwater

There is an existing storm system on the site that consists of some open infiltration areas, and a catch basin and pipe collection system that outfall to the hillside above the wetlands.

2.3.4 Natural Gas

The natural gas service purveyor for the site is Puget Sound Energy. Natural gas service is currently provided to the site. Purveyor has stated that their gas supply is not sufficient to provide uninterruptible gas service for the Westside Reception Center

SECTION 3. IMPACT OF ALTERNATIVES

3.1 BREMERTON SITE

3.1.1 Water

The Westside Reception Center will require a peak domestic flow of 179,200 gpd and a fire flow of 360,000 gallons. The City of Bremerton water system has a capacity of 1,224,000 gpd and a current peak demand of 550,000 gpd. Therefore, the City system has capacity to serve this site. To provide a domestic water service and fire protection water to this site, the City of Bremerton has stated that DOC will need to construct approximately 3.2 miles of 12-inch ductile iron water main along SR 3 and Lake Flora Road to the site. In addition, the City of Bremerton has stated that DOC may need to construct a new booster pump and a 0.5 million gallon reservoir in association with the water main extension. Construction of the offsite water main will require a stream crossing of the Union River.

Onsite improvements will likely consist of an 8-inch or 10-inch water main loop with fire hydrants to provide fire protection.

3.1.2 Sanitary Sewer

The Westside Reception Center will require a peak flow of 128 gallons per minute (gpm) and daily flow of 92,160 gallons. The City treatment lagoons in the vicinity of the project site do not have capacity for the Westside Reception Center. To provide a new sanitary sewer service to this site, the City of Bremerton has stated that DOC will need to construct two pump stations, approximately 1.3 miles of 8-inch force main along SR 3, 0.85 mile of 8-inch gravity main on Port of Bremerton property, an MBR treatment facility on Port of Bremerton property, and 1 mile of 8-inch reclaimed water force main on Port of Bremerton property. Construction of the offsite sewer facilities may require two stream crossings: the Union River and the Northeast Fork of the Union River.

Onsite improvements will likely consist of an 8-inch gravity main that will connect to the new offsite extension on Lake Flora Road.

3.1.3 Stormwater

Storm drainage improvements to mitigate for new impervious surfaces will meet the Washington State Department of Ecology (DOE) 2005 *Stormwater Management Manual for Western Washington (SMMWW)*, as applied by the City of Bremerton.

Because the onsite soils are generally not supportive for infiltration of stormwater, flow control will utilize open ponds that will temporarily store stormwater from the site while releasing at a controlled rate to the site's natural discharge location(s). Underground detention pipe is an alternative if needed due to the potential of wildlife hazards from the ponds in relation to the flight paths from the nearby airport. The natural discharge location downstream of this site is Lider Lake, which does not appear to have any natural outfall.

Water quality of stormwater from areas subject to vehicular traffic will be provided with the use of wetponds, biofiltration, media filter drains, or other methods, as accepted by the City of Bremerton.

Sustainable design elements such as rain gardens and porous pavement will likely be incorporated into the design, as this site falls within the SKIA, which has an emphasis on using Low Impact Development strategies.

Somewhat depending on the required offsite road improvements for SR 3 or Lake Flora Road, the downstream road side ditches will be improved to accept stormwater discharge from the onsite detention ponds.

3.2 MASON COUNTY SITE

3.2.1 Water

The Westside Reception Center will require a peak domestic flow of 179,200 gpd and a fire flow of 360,000 gallons. The City of Shelton water system has capacity to serve this site. In order to provide domestic water and fire protection water service to this site, the City of Shelton will require DOC to construct approximately 1.2 miles of 12-inch ductile iron water main along West Dayton Airport Road (SR 102) from the Washington State Patrol (WSP) offices to the site. Currently, there are plans for a 2-mile water main extension to extend water to the WSP, but funds have not yet been obtained to construct this portion. DOC will be required to fund and construct this water main extension if the current project fails to get funding.

Onsite improvements will likely consist of an 8-inch or 10-inch water main loop with fire hydrants to provide fire protection. The onsite loop will connect to the new water main in West Dayton Airport Road (SR 102).

3.2.2 Sanitary Sewer

The Westside Reception Center will require a peak flow of 128 gpm and daily flow of 92,160 gallons. The City of Shelton treatment plant has capacity for the Westside Reception Center. In order to provide a sanitary sewer service to this site, an 8-inch gravity main will need to be constructed onsite, as well as a pump station to connect to the existing force main located within West Dayton Road (SR 102) near the north property line.

The City of Shelton requires the design of an expansion of the treatment when the treatment plant reaches 85% capacity. This project will not cause the plant to reach 85% capacity.

3.2.3 Stormwater

Storm drainage improvements to mitigate for new impervious surfaces will meet the Washington State DOE 1992 *Stormwater Management Manual for the Puget Sound Basin*, as applied by Mason County. The 2005 *SMMWW* is expected to be adopted by Mason County in 2012.

The onsite soils are generally supportive for infiltration of stormwater if ground water does not inhibit the infiltrative characteristics. Flow control will utilize a combination of open infiltration ponds, swales, and possibly infiltration pipe that will temporarily store stormwater from the site while releasing to the subsurface soils. The depth to ground water has not yet been established. If ground water elevations are determined to be at an elevation that will inhibit infiltration, detention pond(s) or tanks may be necessary to temporarily store storm water while releasing to the downstream drainage features at a pre-determined rate. Alternately, the building and site improvements could be constructed at higher elevations that may allow more flexibility with infiltration.

Water quality of stormwater from areas subject to vehicular traffic will be provided with the use of wetponds, biofiltration, media filter drains, or other methods as accepted by Mason County.

To control stormwater on this site, a wet pond and an infiltration pond will need to be constructed to provide water quality and flow control, respectively.

Sustainable design elements such as rain gardens and porous pavement will likely be incorporated into the design.

3.3 THURSTON COUNTY SITE

3.3.1 Water

The Westside Reception Center will require a peak domestic flow of 179,200 gpd and a fire flow of 3,000 gpm for 120 minutes. The Thurston County water system has capacity to serve this site. The site is currently served by two wells and two water storage tanks. However, Thurston County is requiring that the water service for the Westside Reception Center be connected to the public water system. To achieve connection to the public water system for domestic water and fire protection water to this site, an extension of approximately 1,000 feet of new 12-inch water main from the treatment plant (located adjacent to the site on the east side of Old Highway 9) to the site will need to be constructed, as well as constructing approximately 5,600 feet of new 8-inch water main in Old Highway 9, and connecting to existing 12-inch water main at the intersection of Old Highway 9 and Old Highway 99.

Onsite existing water mains would need to be removed and replaced around the new facility and new fire hydrants installed.

3.3.2 Sanitary Sewer

The Westside Reception Center will require a peak flow of 128 gpm and daily flow of approximately 92,160 gallons. The Thurston County sewage plant does not have capacity for the additional flows from the Westside Reception Center. The site is currently served by Thurston County sewer, with a vacuum system located on the southerly boundary of the site. However, in order to meet the increased waste water flows of the Westside Reception Center, the City treatment plant will need to have expanded capacity. Thurston County has stated that they will be responsible for the construction of a new oxidation ditch to accommodate the additional loading.

Onsite improvements would include replacing some of the gravity mains, as well as replacing the existing grinder pumps with larger pumps, and possibly expanding the volume of the concrete waste water wet well. The existing pumps and concrete waste water wet well are located within the wetland buffer on the southerly boundary of the site.

3.3.3 Stormwater

Storm drainage improvements to mitigate for new impervious surfaces will meet the 2005 *SMMWW*, as applied by Thurston County.

Because the onsite soils are generally supportive for infiltration of stormwater, flow control will utilize a combination of open ponds, swales, and possibly infiltration pipe that will temporarily store stormwater from the site while releasing to the subsurface soils. A portion of the existing storm system will be reused as an emergency overflow for the ponds.

Water quality of stormwater from areas subject to vehicular traffic will be provided with the use of wetponds, biofiltration, media filter drains, or other methods as accepted by Thurston County.

Sustainable design elements such as rain gardens and porous pavement will likely be incorporated into the design.

3.4 NO ACTION ALTERNATIVE

Under the No Action Alternative, the existing reception center that is located at Washington Correction Center in Mason County (WCC) would continue to serve as a reception center for western Washington. With increases in the number of prisoners entering into the correctional system in the future, the amount of space at WCC that is allocated to the reception center function would increase proportionally with increases in inmate population.

With increases in the amount of space at WCC associated with the reception center function, either the long-term prison function at WCC would decrease proportionally with increases in the reception center function or additional long-term incarceration capabilities would be constructed to meet the projected increased demand for bed space. Such additional facilities may be constructed at WCC, existing State correctional facilities or at a new facility. Such would be the subject of a subsequent SEPA review process. Expansions of current facilities or construction of a new facility would result in increased demand on the water, sewer, and stormwater systems in the chosen location.

SECTION 4. PROPOSED MITIGATION

4.1 BREMERTON SITE

4.1.1 Water

Required offsite water main improvements will primarily be constructed within the road prism of SR 3. However, the work will require a stream culvert crossing of the Union River.

Mitigation for this work will include minimizing disturbance of buffer areas by staying within the road prism above the stream culvert, and site restoration to meet City of Bremerton requirements.

4.1.2 Sanitary Sewer

Construction of the majority of the required offsite sewer utilities will be within the existing road prism. However, the work will require two stream crossings: the Union River and the Northeast Fork of the Union River.

Construction of the MBR treatment facility on the Port of Bremerton property may require work in the proximity of sensitive areas.

Mitigation for this work will include minimizing disturbance of buffer areas by boring beneath the river, and site restoration to meet City of Bremerton requirements.

4.1.3 Stormwater

Storm drainage improvements to mitigate for new impervious surfaces service to this site will meet the 2005 *SMMWW*, as applied by the City of Bremerton.

Mitigation for this work will include minimizing disturbance of work areas and site restoration to meet City of Bremerton requirements. Sustainable design elements such as rain gardens and porous pavement will help to mitigate stormwater impacts.

4.2 MASON COUNTY SITE

4.2.1 Water

Construction of the required offsite and onsite water utilities will be within the existing road prism of State Route 101 and West Dayton Airport Road (SR 102) or outside of any sensitive areas.

Mitigation for this work will include minimizing disturbance of the work areas and site restoration to meet Mason County requirements.

4.2.2 Sanitary Sewer

Construction of the required offsite and onsite sanitary sewer utilities will be within the existing road prism or outside of any sensitive areas. Mitigation for this work will include minimizing disturbance of the work areas and site restoration to meet Mason County requirements.

4.2.3 Storm

Storm drainage improvements to mitigate for new impervious surfaces service to this site will meet the 2005 *SMMWW*, as applied by Mason County.

Mitigation for this work will include minimizing disturbance of work areas and site restoration to meet Mason County requirements. Sustainable design elements such as infiltration, rain gardens, and porous pavement will help to mitigate stormwater impacts.

4.3 THURSTON COUNTY SITE

4.3.1 Water

The new offsite water mains are proposed to be constructed within the existing road prism. The onsite water mains are proposed to be constructed outside of the existing wetland and stream buffers where possible.

Required water main improvements easterly toward Old Highway 99 will require crossing beneath Prairie Creek at the bridge crossing. Mitigation for this work will include minimizing disturbance of buffer areas and site restoration to meet Thurston County requirements.

4.3.2 Sanitary Sewer

Sanitary sewer improvements will be necessary within the wetland/stream buffer for the both the private gravity system and the public vacuum system. Mitigation for this work will include minimizing disturbance of buffer areas and site restoration to meet Thurston County requirements.

4.3.3 Storm

Storm drainage improvements to mitigate for new impervious surfaces will meet the 2005 *SMMWW*, as applied by Thurston County.

Mitigation for this work will include minimizing disturbance of work areas and site restoration to meet Thurston County requirements. Sustainable design elements such as infiltration, rain gardens, and porous pavement will help to mitigate stormwater impacts.

4.4 NO ACTION ALTERNATIVE

No mitigation measures are proposed for the No Action Alternative.

SECTION 5. SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

5.1 ALL SITES

5.1.1 Water

As proposed, no unavoidable significant adverse impacts are anticipated.

5.1.2 Sewer

As proposed, no unavoidable significant adverse impacts are anticipated.

5.1.3 Stormwater

As proposed, no unavoidable significant adverse impacts are anticipated.

5.2 NO ACTION ALTERNATIVE

With the No Action Alternative, no significant unavoidable adverse impacts are anticipated. All three sites would remain in their current conditions.

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APPENDIX J

Economic Report

FISCAL ASSESSMENT REPORT

Westside Reception Center

1.0 OVERVIEW

The Department of Corrections (DOC) is conducting a siting process and environmental impact statement (EIS) for a proposed prison reception center facility. The facility would house male offenders from western Washington for initial processing into the corrections system. Through the site selection process, DOC narrowed down submittals to three sites for evaluation in the EIS: Bremerton, unincorporated Thurston County, and unincorporated Mason County. This report evaluates select economic issues including:

- Costs to the state from construction and operation of the facility
- Costs and revenues to host jurisdictions from construction and operation of the facility

The purpose of this section is to identify where these costs and revenues result in impacts to the state or host jurisdiction. An impact exists when the expected costs are larger than the expected revenues. Impacts can either be one-time or ongoing:

- If one-time construction and infrastructure improvement costs outweigh one-time tax or fee revenues, there would be a one-time impact.
- If ongoing facility operating costs outweigh tax or fee revenues, there would be on-going impacts.

2.0 COST ASSESSMENT: STATE

The cost to the State will largely be defined by the acquisition of land, construction of the facility, operation of the facility, and the transport of prisoners. The following sections detail the costs associated with land acquisition, the construction of a new Westside Reception Center, the estimated operating costs, and the transportation costs at each of the alternative sites.

2.1 Construction and Land Acquisition Costs

Current Conditions and Analytic Approach

The two greatest upfront costs to the State in building a Westside Reception Center are related to land acquisition for the potential site and construction costs.

Findings

It is currently estimated that the construction costs for each of the sites are anticipated to range between $130 and $158 million (Exhibit 1).

Exhibit 1
Summary of Reception Center Construction Costs

	Alternative 1 (Bremerton)	Alternative 2 (Mason County)	Alternative 3 (Thurston County)
Facility Construction Cost	$ 110.1 M	$ 110.1 M	$ 109.5 M
On-site Utility/Infrastructure Improvements	$ 20.0 M	$ 13.8 M	$ 10.3 M
Off-site Utility/Infrastructure Improvements	$ 19.8 M	$ 7.7 M	$ 2.2 M
Additional Equipment Costs	$ 8.0 M	$ 8.0 M	$ 8.0 M
Total Construction Cost	$ 157.9 M	$ 139.5 M	$ 130.1 M

Source: Integrus Architecture, AHBL, and M/W Consulting Engineers, 2011.

Below, brief descriptions are provided for the land to be acquired at each alternative site and the anticipated costs necessary to acquire it. Land acquisition costs for the Bremerton and Mason County sites were provided by the current property owners.

City of Bremerton Site

The Bremerton site is approximately 600 acres with a Westside Reception Center size anticipated at approximately 60 acres. The site is currently not developed (for a more detailed description, see chapter 2). The current owner of this property estimates a per-acre price of $43,560[1]. The estimated cost for DOC to purchase 60 acres for this site is therefore approximately $2.6 million. The final cost will depend on the exact amount of acreage purchased.

Mason County Site

The Mason County site is approximately 497 acres with a Westside Reception Center size anticipated at approximately 50 acres. The site is currently not developed (for a more detailed description, see chapter 2). The current owner of this property estimates a per-acre price of $8,000[2]. The estimated cost for DOC to purchase 50 acres for this site is therefore approximately $400,000. The final cost will depend on the exact amount of acreage purchased.

Thurston County Site

The Thurston County site is approximately 209 acres and contains the former DSHS Maple Lane Juvenile Correctional Facility recently operated by DSHS. The Westside Reception Center would occupy the same 55-acre area where the Maple Lane facility currently sits (for a more detailed description of the site, see Chapter 2). The Thurston County site would see ownership transferred from the Department of Social and Health Services (DSHS), who operated the Maple Lane facility, to DOC for the cost of $1.

[1] Letter to Terry McCann from David Overton, Managing Partner, Overton & Associates; 2011.
[2] Letter to Terry McCann from Jim Hunter, Managing Member, Hunter Family Farm LLP; September 19, 2011.

2.2 Operating Costs

Current Conditions and Analytic Approach

The State of Washington currently operates a prison reception center within the Washington Corrections Center (WCC) located in Shelton, Washington. According to a 2010 report on Facility Information at WCC, the operating budget is $52,881,774. The Facility Information document also states that the average daily population of WCC is 1.852, and says that "the Reception and Diagnostic Center…houses 1,500 offenders[3]." Assuming an annual operating cost for the current Reception Center at the same proportion as the number of offenders (i.e. approximately 81%), it costs the State approximately $42.8 million to operate the current Reception Center, as housed within WCC.

The 2002 Prison Transport System Improvement Plan found that WCC transportation costs were $684,776. After recalculating for facilities that have since closed and are no longer part of the routes WCC services and adjusting for inflation, 2011 transportation costs at WCC are estimated to be $837,720.

Summary of Findings for all Alternatives

Ongoing operating costs will account for the majority of state costs related to a new Westside Reception Center. Operating costs shown in Exhibit 2 were provided by DOC.

Exhibit 2
Summary of Annual Reception Center Operating Costs

Cost Center	Annual Cost
Staff Benefits and Salaries	$ 31,884,000
Staff Supplies & Services	$ 1,673,000
Direct Variable Costs	$ 5,000,000
Offender Programming	$ 720,000
Total Operating Cost	**$ 39,277,000**

Source: DOC, 2011.

- Staff benefits and salaries are based on a total of 478 employees, with salaries assigned based on position and current salaries at the Westside Corrections Center. Benefits are assumed to be 30% of salary costs.
- Staff supplies and services are assumed to be $3,500 per FTE per year.
- Direct Variable Costs (DVC) include costs to support the care of prisoners, such as food, laundry, clothing, and medical care. This cost is based on the 2011 legislative budget, which assumes total DVC to be about $4,883 per prisoner. The total shown in Exhibit 1 assumes an average daily population of 1,024 prisoners.

[3] Washington Corrections Center 2010 Facility Information

- Offender programming includes costs for basic skills education, cognitive behavioral therapy, offender job training, and chemical dependency treatment.

Based on the analysis, the total anticipated operating costs to the State will be $39,277,000 annually.

2.3 Transportation Costs

Current Conditions and Analytic Approach

To analyze the different transportation costs, calculations were made based on routing and cost information found in a 2002 report prepared by Carter Goble Associates, Inc.: *Washington Department of Corrections Prisoner Transport System Improvement Plan*. This report determined a transportation cost per mile for the transport operations occurring at the Washington Corrections Center (WCC), which currently houses the existing Reception Center. The cost per mile, in 2001 dollars, was $3.60. Adjusting this per mile cost according to the Consumer Price Index results in a 2011 per mile cost of $4.59.

The 2002 *Washington Department of Corrections Prisoner Transport System Improvement Plan* also includes routing information for the trips made from WCC. The report outlines a total of 11 trips throughout the state, nine of which occurred once a week, and two that occurred twice a week (runs to King County and Pierce, Kitsap, and Jefferson counties). Round-trip mileage calculations were made for these routes and then multiplied by the 2011-adjusted per mile cost of $4.59 to determine the transportation costs for each of the alternative sites. Adjustments were made to two of the routes outlined in the 2001 report: the Airway Heights/I-90 Corridor Route included a stop at the now-closed Pine Lodge Corrections Center, which has been eliminated in the round-trip calculations in this analysis; the McNeil Island route no longer exists per the April 2011 closure of the facility.

Findings

Annual transportation costs range from a low of $803,920 at the City of Bremerton site to a high of $837,720 at the Mason County site. Annual transportation costs at the Thurston County site would be $820,040.

Exhibit 3
Prisoner Transportation Costs, City of Bremerton Site

Weekly Routes	Total Roundtrip Mileage	Mileage Cost (2011 Dollars)
Airway Heights/I-90 Corridor	920	$4,220
I-5 North Corridor	310	$1,420
I-5 South Corridor (A)	350	$1,610
I-5 South Corridor (B)	250	$1,150
Stafford Creek	160	$730
Clallam Bay	290	$1,330
Olympic Corrections Center	330	$1,510
Monroe Complex	180	$830
Pierce County Run	320	$1,470
King County Run	260	$1,190
	Weekly Total	$15,460
	Yearly Total	$803,920

The City of Bremerton site's annual transportation costs are $803,920, the lowest of the three sites considered for the Westside Reception Center. The City of Bremerton site achieves the lowest transportation costs of the three sites on the Airway Heights/I-90 Corridor route, the I-5 North Corridor route, the Clallam Bay route, the Monroe Complex route, and the twice-weekly Pierce and King County runs. It experiences the highest transportation costs on the I-5 South Corridor (A) and (B) routes, the Stafford Creek route, and the Olympic Corrections Center route.

Exhibit 4
Prisoner Transportation Costs, Mason County Site

Routes	Total Roundtrip Mileage	Mileage Cost (2011 Dollars)
Airway Heights/I-90 Corridor	960	$4,410
I-5 North Corridor	350	$1,610
I-5 South Corridor (A)	310	$1,420
I-5 South Corridor (B)	210	$960
Stafford Creek	120	$550
Clallam Bay	310	$1,420
Olympic Corrections Center	270	$1,240
Monroe Complex	220	$1,010
Pierce County Run	410	$1,880
King County Run	350	$1,610
	Weekly Total	$16,110
	Yearly Total	$837,720

The Mason County site's annual transportation costs are $837,720, the highest total of the three sites considered for the Westside Reception Center. The Mason County site does not achieve the lowest transportation costs for any of the routes. It experiences the highest transportation costs on the

Airway Heights/I-90 Corridor route, the I-5 North Corridor route, the Monroe Complex route, and the twice-weekly King County runs.

Exhibit 5
Prisoner Transportation Costs, Thurston County Site

Routes	Total Roundtrip Mileage	Mileage Cost (2011 Dollars)
Airway Heights/I-90 Corridor	950	$4,360
I-5 North Corridor	340	$1,560
I-5 South Corridor (A)	230	$1,060
I-5 South Corridor (B)	160	$730
Stafford Creek	110	$500
Clallam Bay	380	$1,740
Olympic Corrections Center	260	$1,190
Monroe Complex	210	$960
Pierce County Run	480	$2,200
King County Run	320	$1,470
	Weekly Total	$15,770
	Yearly Total	$820,040

The Thurston County site's annual transportation costs are $820,040. The Thurston County site achieves the lowest transportation costs of the three sites on the I-5 South Corridor Routes (A) and (B), the Stafford Creek run, and the Olympic Corrections Center run. It experiences the highest transportation costs on the Pierce County runs and the Clallam Bay run.

3.0 FISCAL ASSESSMENT: HOST JURISDICTIONS

To assess the fiscal impact to the host jurisdiction, the following subtasks address the incremental revenues and costs stemming from the construction and operation of the facility at the alternative sites. This analysis attempts to understand the fiscal impacts in two ways:

(1) The one-time costs and revenues associated with acquisition of land and construction of the reception center, and

(2) The recurring costs and revenues associated with operating the new reception center.

3.1 Existing Conditions

In order to estimate the incremental costs and revenues to the host jurisdiction of placing a reception center at any of the proposed sites, the current costs and revenues generated for the host jurisdictions must be understood. These costs and revenues, and any gains or losses resulting from the change in land use, will be taken into account when calculating the fiscal impacts.

City of Bremerton

List of Services

As Chapter 2 of the Draft EIS describes, the proposed City of Bremerton sites is currently undeveloped and under private ownership. The following providers currently serve the site:

- Utilities. Although the site is within the City's water and sewer utility service area, the City does not currently provide these services to the site. Puget Sound Energy provides electrical service to the site[4].
- Police. Police protection services are provided by the Bremerton Police Department[5].
- Fire/EMS. Fire and EMS services are provided by South Kitsap Fire and Rescue (SKFR). Although the proposed site location was annexed to the City in 2009, SKFR continues to provide fire and EMS service though an agreement with the City and its fire department[5].
- Schools. The City is served by the Bremerton School District[5].
- Parks. Parks and open space resources are owned and maintained by the City[5].

List of Revenues

The only revenue currently generated at this site is property tax. Initiative 747, implemented in 2001, limits annual property tax revenue increases to 1.0% annually, plus revenue from new construction. Since real estate generally appreciates at a rate higher than 1.0%, the City is likely already maximizing its property tax revenue each year and therefore would not see a decrease from taking this site off its tax roll after it moves to public ownership.

Mason County

List of Services

As Chapter 2 of the Draft EIS describes, the proposed Mason County site is currently undeveloped and under private ownership. The following providers currently serve the site:

- Utilities. The site is within the service area of the City of Shelton's water and sewer utility—the City currently provides sewer service but water service does not reach the site. Cascade Natural Gas provides gas service to the site and Public Utility District #3 provides electrical service[4].
- Police. Police protection services are provided by the Mason County Sheriff's Department[5].
- Fire/EMS. Fire and EMS service are provided by Mason County Fire District 16 with automatic aid from Mason County Fire District 16 with automatic aid from Mason County Fire Districts 11 and 13[5].
- Schools. Unincorporated Mason County is served by Pioneer, Hood Canal, Mark M Knight, Grapeview, North Mason, and Southside School Districts[5].

[4] AHBL and M/W Consulting Engineering, 2011.
[5] See section 3.14.1.1 of Draft EIS for more information..

- Parks. Parks and open spaces in unincorporated Mason County are owned and maintained by the County[5].

List of Revenues

The only revenue currently generated at this site is property tax. Initiative 747, implemented in 2001, limits annual property tax revenue increases to 1.0% annually, plus revenue from new construction. Since real estate generally appreciates at a rate higher than 1.0%, the City is likely already maximizing its property tax revenue each year and therefore would not see a decrease from taking this site off its tax roll after it moves to public ownership.

Thurston County

List of Services

The proposed Thurston County site is currently owned by the State of Washington, and contains the former Maple Lane Juvenile Detention Facility. This site contains multiple structures, but is not currently operational. The following providers currently serve the site:

- Utilities. Thurston County currently provides sewer service to the site, and it is within the County's water utility service area although service is not currently provided. Puget Sound Energy provides both natural gas and electrical service to the site[4].
- Police. Police protection services are provided by the Thurston County Sheriff's Office[5].
- Fire/EMS. Fire and EMS services are currently provided by the West Thurston Regional Fire Authority[5].

List of Revenues

Although the site is developed, there are minimal revenues currently collected by the County. It is likely there are some utility charges from maintaining existing structures, but tax revenue amounts are negligible. The County does not collect property taxes from this site, as it is publicly owned.

3.2 Impacts from Facility Construction at Action Alternatives

This section identifies the costs and revenues that will accrue to the host jurisdiction from acquisition and construction of the reception center. Costs to the host jurisdiction related to acquisition and construction will be negligible—the cost for most needed upgrades and infrastructure improvements will be borne by the state.

One-time revenues to the host jurisdiction are tied to the construction of the jail, and include:

- Retail sales tax on construction (materials and construction services).
- Business and occupation (B&O) tax on gross receipts of construction.
- Capital-restricted real estate excise taxes (REET).
- One-time utility hook-up fees or initial connection charges.

City of Bremerton

Service Costs

Utilities. Costs associated with construction in Bremerton include upgrades to infrastructure for utility service provision. Since the DOC will pay for all needed utility upgrades to serve the new reception center, it is estimated there will be no one-time costs to the City of Bremerton. (Analysis regarding utility services was completed by AHBL and M/W Consulting Engineering).

Analysis of the impacts to public services, including police and Fire/EMS, were completed by EA | Blumen, and more information is available in section 3.14 of the Draft EIS.

Police. During the construction process, there may also be increased calls for police service due to trespassing, construction site theft, vandalism, or traffic incidents. Overall, construction impacts on police service are not expected to be significant and no additional staffing or equipment would be required by the Bremerton Police Department.

Fire/EMS. Construction impacts on fire and EMS service would not be significant. Existing SKFR staffing and equipment are expected to be sufficient to handle increased service needs during the construction period.

Revenues

One-time revenues will be generated by land acquisition, facility construction, and infrastructure improvements at the Bremerton site. The City will receive revenue from the retail sales tax on construction services and materials; B&O tax on gross receipts of the companies engaged in construction, planning, and capital improvements; and the real estate excise tax generated by the sale of land.

Of the sales tax collected in the City of Bremerton, only the 0.85% local option sales tax accrues to the City. This tax is levied on the value of construction including both materials and labor.

Exhibit 6 summarizes the one-time revenues for the Bremerton site. It is estimated that the City will receive approximately $4,275,100 in total tax revenue from facility construction and land acquisition.

Exhibit 6
Revenues from Facility Construction, Land Acquisition, Infrastructure Improvements
(Bremerton)

	Construction	Land Acquisition	Total
Cost	$ 157,941,000	$ 2,613,600	
Portion Subject to Sales Tax	90%	0%	
Taxable Cost	$141,515,000	$ -	
Applicable Tax Rate	0.85%	0.85%	
Subtotal: Sales Tax Revenue	**$ 1,203,000**	**$ -**	**$ 1,203,000**
Portion Subject to B&O Tax	90%	0%	
Taxable Cost	$141,515,000	$ -	
Applicable Tax Rate	0.13%	0.13%	
Subtotal: B&O Tax Revenue	**$ 177,000**	**$ -**	**$ 177,000**
Portion Subject to REET	0%	100%	
Taxable Cost	$ -	$ 2,613,600	
Applicable Tax Rate	0.50%	0.50%	
Subtotal: REET Revenue	**$ -**	**$ 13,100**	**$ 13,100**
Utility Hook-up Fees*			**$ 2,882,000**
TOTAL TAX REVENUE	**$ 1,380,000**	**$ 13,100**	**$ 4,275,100**

** The City of Bremerton is in the process of modifying their Municipal Code to allow developer costs expended for construction of municipal systems to offset these general facility charges. Since adoption of these code revisions will likely not meet the timeline of the reception center project, the City of Bremerton may enter into an agreement upon site selection for the offset.*

- Sales Tax applies to the portions of the total construction cost spent on building materials, supplies, and labor costs. Costs for project fees, design, and contingencies are not taxable. The total estimated construction cost for this site, including utility and infrastructure improvements, is about $157.9 million[6]. This analysis estimates that about 90% of total estimated construction costs are taxable. The remaining 10% accounts for design, engineering, and development fees. One-time sales tax revenues are estimated to be about $1,203,000.
- Bremerton levies a 0.125% B&O tax on retail services, which applies to construction costs. This rate results in approximately $177,000 in one-time B&O revenues from facility construction.
- The estimated price of this site is $2,613,600, resulting in approximately $13,100 in one-time REET revenues.
- The City will receive utility hook-up fees of approximately $2.9 million from providing water and sewer service to the site.

[6] Construction costs provided by Integrus Architecture, Utility and Infrastructure improvement costs provided by AHBL and M/W Consulting Engineering.

Mason County

Service Costs

Utilities. Costs associated with construction in Mason County include upgrades to infrastructure for utility service provision. Since the DOC will pay for all needed utility upgrades to serve the new reception center, it is estimated there will be no one-time costs to Mason County. (Analysis regarding utility services was completed by AHBL and M/W Consulting Engineering).

Analysis of the impacts to public services, including police and Fire/EMS, were completed by EA | Blumen, and more information is available in section 3.14 of the Draft EIS.

Police. During the construction process, there may also be increased calls for police service due to trespassing, construction site theft, vandalism, or traffic incidents. Overall, construction impacts on police service are not expected to be significant and no additional staffing or equipment would be required by the Sheriff's Office.

Fire/EMS. Construction impacts on fire and EMS service would not be significant. Existing staffing and equipment are expected to be sufficient to handle increased service needs during the construction period.

Revenues

One-time revenues will be generated by land acquisition, facility construction, and infrastructure improvements at the Mason County site. The County will receive revenue from the retail sales tax on construction services and materials, real estate excise tax generated by the sale of land, and one-time utility charges.

Of the sales tax collected in unincorporated Mason County, only the 1% local option sales tax accrues to the County. This tax is levied on the value of construction including both materials and labor.

Exhibit 7 summarizes the one-time revenues for the Mason County site. It is estimated that Mason County will receive approximately $2,152,000 in total tax revenue from facility construction and land acquisition.

Exhibit 7
Revenues from Facility Construction, Land Acquisition, Infrastructure Improvements
(Mason County)

	Construction	Land Acquisition	Total
Cost	$ 139,547,000	$ 400,000	
Portion Subject to Sales Tax	89%	0%	
Taxable Cost	$123,918,000	$ -	
Applicable Tax Rate	1.00%	1.00%	
Subtotal: Sales Tax Revenue	**$ 1,239,000**	**$ -**	**$ 1,239,000**
Portion Subject to B&O Tax	89%	0%	
Taxable Cost	$123,918,000	$ -	
Applicable Tax Rate	0.00%	0.00%	
Subtotal: B&O Tax Revenue	**$ -**	**$ -**	**$ -**
Portion Subject to REET	0%	100%	
Taxable Cost	$ -	$ 400,000	
Applicable Tax Rate	0.50%	0.50%	
Subtotal: REET Revenue	**$ -**	**$ 2,000**	**$ 2,000**
Utility Hook-up Fees		**$ -**	**$ 911,000**
TOTAL TAX REVENUE	**$ 1,239,000**	**$ 2,000**	**$ 2,152,000**

- Total construction costs for this site are estimated to be about $139.5 million, including utility and infrastructure improvements[7]. Sales Tax applies to the portions of the total construction cost spent on building materials, supplies, and labor costs. Costs for project fees, design, and contingencies are not taxable. One-time sales tax revenues are estimated to be about $1,239,000.
- Mason County does not have the statutory authority to levy a B&O tax.
- The estimated price of this site is $400,000, resulting in approximately $2,000 in one-time REET revenues.
- Mason County will receive approximately $911,000 in initial utility service charges.

Thurston County

Service Costs

Utilities. Costs associated with construction in Thurston County include upgrades to infrastructure for utility service provision. Since the DOC will pay for all needed utility upgrades to serve the new reception center, it is estimated there will be no one-time costs to Thurston County. (Analysis regarding utility services was completed by AHBL and M/W Consulting Engineering).

Analysis of the impacts to public services, including police and Fire/EMS, were completed by EA | Blumen, and more information is available in section 3.14 of the Draft EIS.

[7] Construction costs provided by Integrus Architecture, Utility and Infrastructure improvement costs provided by AHBL and M/W Consulting Engineering.

Police. During the construction process, there may also be increased calls for police service due to trespassing, construction site theft, vandalism, or traffic incidents. Overall, construction impacts on police service are not expected to be significant and no additional staffing or equipment would be required by the Sheriff's Office.

Fire/EMS. Construction impacts on fire and EMS service would not be significant. Existing staffing and equipment are expected to be sufficient to handle increased service needs during the construction period.

Revenues

One-time revenues will be generated by facility construction and infrastructure improvements at the Thurston County site. The County will receive revenue from the retail sales tax on construction services and materials. Since the property is being transferred between state departments for a minimal price of $1, there is no appreciable revenue from real estate excise tax.

Of the sales tax collected in unincorporated Thurston County, only the 1% local option sales tax accrues to the County. This tax is levied on the value of construction including both materials and labor.

Exhibit 8 summarizes the one-time revenues for the Thurston County site. It is estimated that Thurston County will receive approximately $3,438,000 in total tax revenue from facility construction and infrastructure improvements.

Exhibit 8
Revenues from Facility Construction, Land Acquisition, Infrastructure Improvements
(Thurston County)

	Construction	Land Acquisition	Total
Cost	$ 130,055,000	$ 1	
Portion Subject to Sales Tax	88%	0%	
Taxable Cost	$114,839,000	$ -	
Applicable Tax Rate	1.00%	1.00%	
Subtotal: Sales Tax Revenue	**$ 1,148,000**	**$ -**	**$ 1,148,000**
Portion Subject to B&O Tax	88%	0%	
Taxable Cost	$114,839,000	$ -	
Applicable Tax Rate	0.00%	0.00%	
Subtotal: B&O Tax Revenue	**$ -**	**$ -**	**$ -**
Portion Subject to REET	0%	100%	
Taxable Cost	$ -	$ 1	
Applicable Tax Rate	0.50%	0.50%	
Subtotal: REET Revenue	**$ -**	**$ 0**	**$ 0**
Utility Hook-up Fees			**$ 2,290,000**
Traffic Impact Fees			**$ 184,000**
TOTAL TAX REVENUE	**$ 1,148,000**	**$ 0**	**$ 3,438,000**

- Total construction costs at this site, including utility and infrastructure improvements, are estimated to be about $130.1 million[8]. Sales Tax applies to the portions of the total construction cost spent on building materials, supplies, and labor costs. Costs for project fees, design, and contingencies are not taxable. One-time sales tax revenues are estimated to be about $1,148,000.
- Thurston County does not have the statutory authority to levy a B&O tax.
- Since the land is being sold from one state department to another for a minimal price, there are no associated real estate excise tax revenues.
- The County will receive initial utility charges of approximately $2,290,000.
- The County will receive traffic impact fees for the project totaling about $184,000. These fees will come from five separate impact charges.

3.3 Impacts from Facility Operation at Action Alternatives

Recurring costs and revenues will come from the operation of the jail once construction is finished and the jail is occupied. Costs to the host jurisdiction will be generated by the need for additional service provision, such as police, fire and EMS, schools, and parks. This analysis estimates annual impacts associated with the new reception center operating at full capacity.

[8] Construction costs provided by Integrus Architecture, Utility and Infrastructure improvement costs provided by AHBL and M/W Consulting Engineering.

Revenues generated will include the retail sales tax, property tax, and utility taxes. Only the City of Bremerton will receive utility tax revenues – counties are not statutorily enabled to levy these taxes. Revenue impacts will be both direct, generated by activity on the site, and indirect, generated by the increase in local population associated with employees moving to the area.

City of Bremerton

Service Costs

Impacts to public services were generated by EA | Blumen, and more detailed analysis can be found in Section 3.14 of the Draft EIS.

Police. It is estimated that approximately 20.5 additional calls for police would be generated by the reception center each year, Given that the City currently handles approximately 56,000 calls each year, no significant impacts would be generated. Additionally the population increase from in-migration of employees would not significantly change the ratio of commissioned officers per capita, requiring no increase in police staffing.

Fire/EMS. The additional 46 calls per year for fire/EMS services generated by the prison reception center would represent a 0.5 percent increase over the average of 8,782 SKFR calls and would not be anticipated to significantly impact the level of service provided by the SKFR. Increased population from in-migration of employees to the City of Bremerton would not be assumed to generate significant impacts to fire or EMS needs for the Bremerton Fire Department.

School. Up to approximately 55 school-age children could move into the City of Bremerton as a result of the increased employment levels and population. This would represent a 1.1% increase in student population and would not be assumed to generate significant impacts to schools.

Parks. The relatively small population increase anticipated at the Bremerton site would not generate significant impacts to parks or open spaces.

Revenues

Direct

Direct revenues to the City of Bremerton will come from the sales tax applied to consumables and supplies purchased for jail operations as well as utility tax revenues. Exhibit 9 summarizes the tax revenue that the City will receive from reception center operations.

Exhibit 9
Tax Revenues from Direct Facility Operations: Bremerton

	Cost	Tax Rate	Revenue to City
Utility Taxes			
Water	$ 63,000	9.50%	$ 6,000
Sewer	$ 249,000	9.50%	$ 23,700
Gas	$ 267,000	6.00%	$ 16,000
Electricity	$ 569,000	6.00%	$ 34,100
Cable	$ 190,000	7.00%	$ 13,300
Garbage	$ 23,000	9.50%	$ 2,200
Telephone	$ 18,000	6.00%	$ 1,100
Sales Tax			
Consumable and Supplies	$ 3,231,000	0.85%	$ 27,500
TOTAL	**$ 4,610,000**		**$ 123,900**

- The City will receive about $123,900 each year in ongoing tax revenues from operations of the reception center.
- Annual consumables and supplies at the reception center will total about $3.2 million[9], resulting in approximately $27,500 in annual sales tax revenue to the City.
- The City of Bremerton will receive approximately $96,400 annually in utility tax revenue. (Annual utility charges were provided by M/W Consulting Engineering).

Indirect

Indirect revenues will be generated by employees of the reception center that choose to live in and are new to the City of Bremerton. These revenues include property taxes and sales taxes. Approximately 100 (21%) of the 478 employees[10] that would staff the Bremerton site are expected to live within City limits.

Property Tax. Initiative 747, implemented in 2001, limits annual property tax revenue increases to 1.0% annually, plus add-on revenue from new construction. In order for there to be a net impact on the County's property tax revenue from operations of the reception center, the population increase would need to drive new housing development, and therefore, the amount of new-construction that would be added on top of the jurisdiction's legal levy limit.

The City of Bremerton currently has about 2,300 vacant housing units[10] (about 13.5% of total housing in the City). Given that approximately 100 new employees are estimated to move to the City, the existing housing stock would appear to be sufficient to absorb this potential increase. No new housing construction would be necessary and no impact to the levy new construction add-on value is anticipated.

Sales Tax. Each member of the population new to Bremerton will likely generate some sales tax revenue to the City. In order to estimate this amount, the number of staff likely to live in Bremerton was multiplied by a 'persons per household' number, on the assumption that each staff member will

[9] Department of Corrections, 2011.
[10] EA | Blumen, 2011.

represent his or her own household. This total number of new persons was then multiplied by the current (2010) average sales tax per capita rate in Bremerton, as reported by the Department of Revenue. The City's local sales tax rate of 0.85% was then applied to the total estimated taxable retail sales. The results of this analysis are presented in Exhibit 10. Indirect sales tax revenues are estimated to be about $38,800 per year for the City of Bremerton.

Exhibit 10
Estimate of New Sales Tax Revenue from Population Increases: Bremerton

	BREMERTON
Staff Living in City	100
Persons Per Household Estimate	2.51
Total Persons new to Bremerton	**252**
Annual Taxable Retail Sales Per Capita (2010)	18,100
Taxable Retail Sales Generated by New Pop.	4,560,400
Sales Tax Rate	0.85%
New Annual Sales Tax Revenue	**38,800**

Mason County

Service Costs

Impacts to public services were generated by EA | Blumen, and more detailed analysis can be found in Section 3.14 of the Draft EIS.

Police. It is estimated that approximately 20.5 additional calls for police would be generated by the reception center each year, Given that the Sheriff's Department currently handles approximately 18,000 calls each year, no significant impacts would be generated. Additionally the population increase from in-migration of employees would not significantly change the ratio of commissioned officers per capita, requiring no increase in police staffing.

Fire/EMS. The estimated one additional call for fire suppression services per year would be handled by Mason County Fire District 16 through a Memorandum of Understanding with DOC, and would not be anticipated to significantly impact the level of service provided by the District. The estimated 45 additional calls for EMS service would likely be handled by Mason County Medic One through a new contract with DOC.

Additional population in unincorporated areas of the County from in-migration of employees would not be assumed to generate significant impacts to fire or EMS services, as new residents will likely be spread throughout several fire districts.

Schools. The approximately 49 new students who would move into unincorporated Mason County would likely be distributed throughout several school districts. The relatively small number of new students in any given school district would not be assumed to generate significant impacts to schools.

Parks. The relatively small population increase anticipated at the Bremerton site would not generate significant impacts to parks or open spaces.

Revenues

Direct

Direct revenues to Mason County will come from the sales tax applied to consumables and supplies purchased for jail operations. Exhibit 11 summarizes the tax revenue that the County will receive from reception center operations.

Exhibit 11
Tax Revenues from Direct Facility Operations: Mason County

	Cost	Tax Rate	Revenue to County
Utility Taxes			
Water	$ 98,000	0.00%	$ -
Sewer	$ 233,000	0.00%	$ -
Gas	$ 267,000	0.00%	$ -
Electricity	$ 438,000	0.00%	$ -
Cable	$ 112,000	0.00%	$ -
Garbage	$ 23,000	0.00%	$ -
Telephone	$ 18,000	0.00%	$ -
Sales Tax			
Consumable and Supplies	$ 3,231,000	1.00%	$ 32,300
TOTAL	**$ 4,420,000**		**$ 32,300**

- Annual consumables and supplies at the reception center will total about $3.2 million, resulting in approximately $32,300 in annual sales tax revenue to Mason County.
- Mason County is not statutorily authorized to collect utility taxes.

Indirect

Indirect revenues will be generated by employees of the reception center that choose to live in and are new to unincorporated Mason County. These revenues include property taxes and sales taxes. Approximately 91 (19%) of the 476 employees[11] that would staff the Mason County site are expected to live in unincorporated portions of the County.

Property Tax. Initiative 747, implemented in 2001, limits annual property tax revenue increases to 1.0% annually, plus add-on revenue from new construction. In order for there to be a net impact on the County's property tax revenue from operations of the reception center, the population increase would need to drive new housing development, and therefore, the amount of new-construction that would be added on top of the jurisdiction's legal levy limit.

Unincorporated Mason County's existing vacant housing would be expected to be sufficient to handle increased demand for housing that could result from the in-migration of employees. No new housing construction would be necessary and no impact to the levy new construction add-on value is anticipated.

Sales Tax. Each member of the population new to Mason County will generate some sales tax revenue to the County. In order to estimate this amount, the number of staff likely to live in Mason County was

[11] EA | Blumen, 2011.

multiplied by 'a persons per household' ratio of 2.51, on the assumption that each staff member will represent his or her own household. This total number of new persons was then multiplied by the current (2010) average sales tax per capita rate in Mason County, as reported by the Department of Revenue. Mason County's local sales tax rate of 1% was then applied to the total estimated taxable retail sales. The results of this analysis are presented in Exhibit 12. Indirect sales tax revenues are estimated to be about $13,200 per year for Mason County.

Exhibit 12
Estimate of New Sales Tax Revenue from Population Increases: Mason County

	MASON COUNTY
Staff Living in Unincorporated County	91
Persons Per Household Estimate	2.51
Total Persons new to Mason County	**228**
Annual Taxable Retail Sales Per Capita (2010)	5,800
Taxable Retail Sales Generated by New Pop.	1,324,800
Sales Tax Rate	1.00%
New Annual Sales Tax Revenue	**13,200**

Thurston County

Service Costs

Impacts to public services were generated by EA | Blumen, and more detailed analysis can be found in Section 3.14 of the Draft EIS.

Police. It is estimated that approximately 20.5 additional calls for police would be generated by the reception center each year, Given that the Sheriff's Department currently handles approximately 56,000 calls each year, no significant impacts would be generated. Additionally the population increase from in-migration of employees would not significantly change the ratio of commissioned officers per capita, requiring no increase in police staffing.

Fire/EMS. The additional annual calls expected from the reception center (1 for fire suppression and 45 for EMS response) would represent a 1.7% increase over the average of 2,701 calls the Thurston Regional Fire Authority current handles, and would not be anticipated to significantly impact the level of service provided. Additional population increases would also not be expected to increase service needs.

Schools. Given how new school-age children would be spread throughout the unincorporated areas of Thurston County, significant impacts to schools are not anticipated.

Parks. The relatively small population increase anticipated at the Bremerton site would not generate significant impacts to parks or open spaces.

Revenues

Direct

Direct revenues to Thurston County will come from the sales tax applied to consumables and supplies purchased for jail operations. Exhibit 13 summarizes the tax revenue that the County will receive from reception center operations.

Exhibit 13
Tax Revenues from Direct Facility Operations: Thurston County

	Cost	Tax Rate	Revenue to County
Utility Taxes			
Water	$ 317,000	0.00%	$ -
Sewer	$ 432,000	0.00%	$ -
Gas	$ 317,000	0.00%	$ -
Electricity	$ 569,000	0.00%	$ -
Cable	$ 191,000	0.00%	$ -
Garbage	$ 23,000	0.00%	$ -
Telephone	$ 52,000	0.00%	$ -
Sales Tax			
Consumable and Supplies	$ 3,231,000	1.00%	$ 32,300
TOTAL	**$ 5,132,000**		**$ 32,300**

- Annual consumables and supplies at the reception center will total about $3.2 million, resulting in approximately $32,300 in annual sales tax revenue to Thurston County.
- Thurston County is not statutorily authorized to collect utility taxes.

Indirect

Indirect revenues will be generated by employees of the reception center that choose to live in and are new to unincorporated Thurston County. These revenues include property taxes and sales taxes. Approximately 62 (13%) of the 480 employees[12] that would staff the Thurston County site are expected to live in unincorporated portions of the County.

Property Tax. Initiative 747, implemented in 2001, limits annual property tax revenue increases to 1.0% annually, plus add-on revenue from new construction. In order for there to be a net impact on the County's property tax revenue from operations of the reception center, the population increase would need to drive new housing development, and therefore, the amount of new-construction that would be added on top of the jurisdiction's legal levy limit.

Existing vacant housing near the site would be expected to be sufficient to handle increased demand for housing that could result from the in-migration of employees. No new housing construction would be necessary and no impact to the levy new construction add-on value is anticipated.

Sales Tax. Each member of the population new to Thurston County will generate some sales tax revenue to the County. In order to estimate this amount, the number of staff likely to live in Thurston County was multiplied by a 'persons per household' ratio of 2.51, on the assumption that each staff

[12] EA | Blumen, 2011.

member will represent his or her own household. This total number of new persons was then multiplied by the current (2010) average sales tax per capita rate in Thurston County, as reported by the Department of Revenue. Thurston County's local sales tax rate of 1% was then applied to the total estimated taxable retail sales. The results of this analysis are presented in Exhibit 14. Indirect sales tax revenues are estimated to be about $6,100 per year for Thurston County.

Exhibit 14
Estimate of New Sales Tax Revenue from Population Increases: Thurston County

	THURSTON COUNTY
Staff Living in Unincorporated County	62
Persons Per Household Estimate	2.51
Total Persons new to Thurston County	**157**
Annual Taxable Retail Sales Per Capita (2010)	3,900
Taxable Retail Sales Generated by New Pop.	610,800
Sales Tax Rate	1.00%
New Annual Sales Tax Revenue	**6,100**

APPENDIX K

Historic Resources Technical Report

DOC Westside Reception Center

HISTORIC RESOURCES

BOLA Architecture + Planning
11.22.2011

HISTORIC RESOURCES

Introduction

This report presents the results of historic resource investigations for the proposed DOC Westside Reception Center Project. The report identifies historic resources on the potential sites and in their immediate vicinity, evaluates potential impacts to these resources as a result of construction and operation of the proposed project, and identifies measures to avoid and/or reduce impacts.

The proposed *Westside Prison Reception Center* would contain approximately 356,000 sq. ft.of building area, with 1,024 beds and reception center services, and would provide parking for up to 400 vehicles.

Prison reception center services provided by the proposed facility would include new offender assessments in the areas of physical and mental health, security and management needs, and other needs such as education and chemical dependency treatment. After completion of reception center services, offenders would be transferred from the prison reception center to an assigned prison facility for long-term incarceration.

Described below is the regulatory framework for evaluating historic resources, the research undertaken for this document, a brief context statement and description of the Thurston County site and its buildings and features, and a map and list of historic properties within the Area of Potential Effect (APE). Properties within the APE constructed in 1962 or earlier (50 years or older) are cited by their building name, original construction date, and historic status or eligibility recommendation in response to the listing criteria of the National Register of Historic Places (NRHP). The report also includes an analysis of impacts and mitigation recommendations.

Regulatory Framework

Designated landmarks are those properties that have been recognized locally, regionally, or nationally as significant resources to the community, city, state, or nation. Recognition may be provided by listing in the National Register of Historic Places (NRHP) or the Washington Heritage Register (WHR), through a nomination process managed by the Washington State Department of Archaeology and Historic Preservation (DAHP); or by listing as a county or local landmark. Typically, a property is not eligible for consideration for listing until it is at least 50 years old.

National Register of Historic Places

The National Park Service administers the NRHP. The National Register is the official federal list of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture. National Register properties have significance to the history of their community, state, or the nation. Nominations for listing historic properties come from State Historic Preservation Officers, from Federal Preservation Officers for properties owned or controlled by the United States Government, and from Tribal Historic Preservation Officers for properties on tribal lands. Private individuals and organizations, local governments, and American Indian tribes often initiate this process and

prepare the necessary documentation. In Washington State, the Washington State Advisory Council on Historic Preservation, organized and staffed by DAHP, considers each property proposed for listing and makes a recommendation on its eligibility.

To be eligible for listing, normally a property must be at least 50 years of age and possess significance in American history and culture, architecture, or archaeology to meet one or more of four established criteria:

A. Association with events that have made a significant contribution to the broad patterns of our history; or

B. Association with the lives of significant persons in our past; or

C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded or may be likely to yield, information important in history or prehistory.

Historic resources eligible for listing in the National Register may include buildings, sites, structures, objects, and historic districts. A resource less than 50 years of age may be eligible if it can be demonstrated that sufficient time has passed to understand its historic importance or if the resource is determined to have 'exceptional' importance (National Register Bulletin 15, p. 43). To be eligible for listing in the National Register, a property must also have integrity, which is defined as "the ability of a property to convey its significance." Within the concept of integrity, the National Register recognizes seven aspects or qualities that in various combinations define integrity. These are feeling, association, workmanship, location, design, setting, and materials (National Register Bulletin 15, p. 44–45).

There is one National Register-listed resource, the Administration Building, on the Thurston County Site.

Washington Heritage Register

The Washington Heritage Register (WHR) is an official listing of historically significant properties found throughout the state. The list is maintained by DAHP and includes districts, sites, buildings, structures, and objects that have been identified and documented as being significant in local or state history, architecture, archaeology, engineering, or culture. Properties that are listed in the NRHP are automatically added to the WHR.

Anyone may prepare and submit a WHR nomination to DAHP. Complete nominations are scheduled for consideration by the State Advisory Council. To be eligible for listing, a property must qualify under the following:

- A building, site, structure, or object must be at least 50 years old. If newer, the resource should have documented exceptional significance.

- The resource should have a high to medium level of integrity, i.e. it should retain important character defining features from its historic period of construction.

- The resource should have documented historical significance at the local, state, or federal level.

The Administration Building (Thurston County site) is also a Washington Heritage Register property.

Thurston County Historic Register

Thurston County maintains a Historic Register which is the official list of places (sites, buildings and structures) important to the history of Thurston County. The Thurston County Historic Register recognizes properties that are at least 50 years old and are important for one or more of the following reasons:

1) Historical Importance -- the property is: the site of an historic event with an effect upon society; identified with a person or group who had some influence on society; or exemplifies the cultural, social, religious, economic, political, aesthetic or engineering history of the county.

2) Architectural Importance -- the property is: (a) an individual building that embodies those distinguishing characteristics of an architectural type, period, style or method of design or construction; is the work of an architect or master builder whose individual work has influenced the development of the county; or (b) a group of buildings that may lack distinction individually but together are easily distinguished as a unit and characterize an earlier era, way of living, and construction of the built environment.

3) Archaeological Importance -- the property has yielded or may be likely to yield archaeological information important in pre-history or history.

4) Birthplaces, Graves, Cemeteries -- the property is: a birthplace or grave of a person of outstanding historical importance; or a cemetery significant because of its age, distinctive design features or association with historic events or cultural patterns.

There are no Thurston County Historic Register-listed properties on the Thurston County site.

Research Methods

BOLA Architecture + Planning assessed historic resources within the potential project areas and vicinity by obtaining relevant, previously prepared historic inventories and landmark nominations; conducting a field investigation of the Thurston County Site; and reviewing records from DAHP, Kitsap County Assessor, Thurston County Assessor, Mason County Assessor, and the Thurston County Historic Preservation Commission, as well as histories of Maple Lane School. Buildings constructed in 1962 or earlier were assessed and evaluated for potential historical or architectural significance, based on the 50-year age requirement for historic properties in the NRHP, WHR, and Thurston County Historic Register.

Existing Conditions

Bremerton Site

The Bremerton Site is located in Kitsap County, on the east side of SW Lake Flora Road and south of Highway 3. The property is presently undeveloped and contains no buildings. No designated historic buildings were identified in the area immediately surrounding the site.

Mason County Site

The Mason County Site is located northwest of Shelton, on the south side of W Dayton Airport Road / Highway 102 immediately west of its intersection with Austins Court Road. The property is presently undeveloped and contains no buildings. No designated historic buildings were identified in the area immediately surrounding the site.

Thurston County Site

The Thurston County Site consists of a portion of the campus of Maple Lane School, which is located along the I-5 corridor, five miles north of Centralia and 17 miles south of Olympia.

Maple Lane School History

The Thurston County Site is located on the grounds of Maple Lane School, originally known as the State School for Girls. Established by the state in 1913, the school opened the following year. Until then, the Washington State Reform School (renamed the State Training School in 1907) established in 1891, served boys and girls who had committed crimes or were orphans. These "inmates" were required to work—learning such skills as farming and carpentry—as well as receive an education.

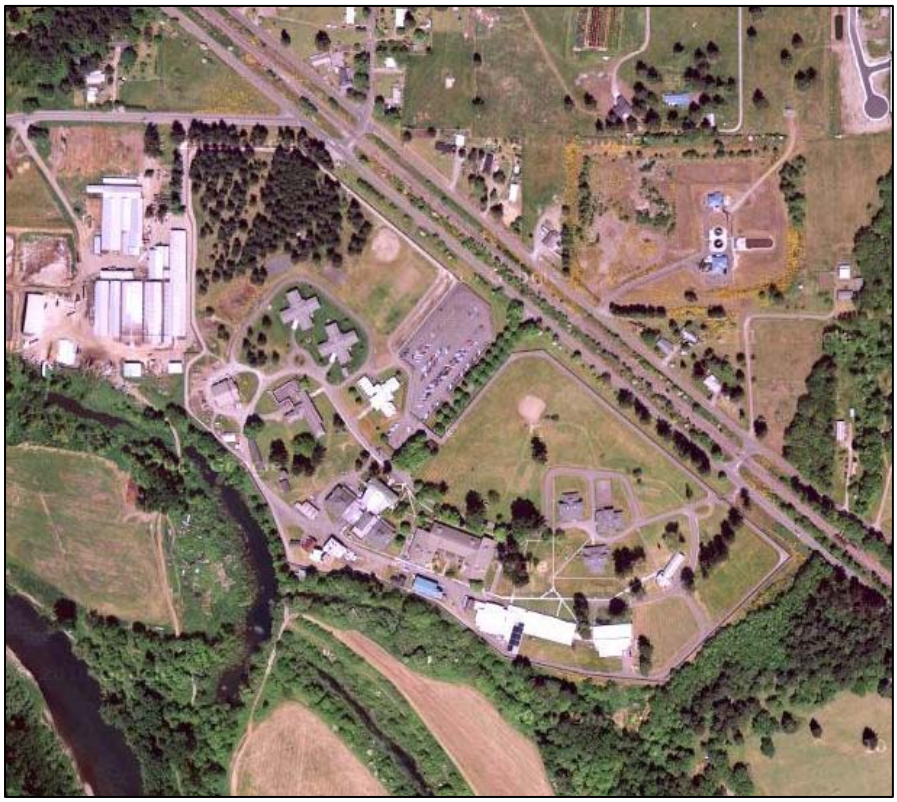
In 1910, the State Training School's Superintendent made a request to the Governor for separation of the boys and girls. The State Legislature enacted a law in 1913 that "establish[ed] a state school for girls in conjunction with the Washington State Training School" (Session Laws, Chapter 157). The establishing act specified that the site would be "within a radius of not less than one mile and not more than ten miles of the State Training School at Chehalis," that the superintendent and staff would be women, and that the girls would be instructed "in all of the branches usually taught in the grades of the common schools of the state, also in such trades and vocational occupations as may be found desirable." To be committed, a girl had to be "more than ten and under eighteen...[and] found delinquent under the juvenile delinquency law of this state." Once committed, the girl could be held until age 21, unless paroled or discharged earlier. Girls had to be mentally and physically healthy—"of sound mind," not subject to "fits," and healthy enough to receive the discipline of the school.

The site, near Grand Mound, was selected and purchased for $20,000, and the school opened December 22, 1914. In addition to the educational regimen, the school offered "a virtual course in farming and animal husbandry…The girls milked cows, provided for bees, and harvested crops...They raised and slaughtered livestock and canned produce." (State Historic Property Inventory form, 1985.)

In the early 1950s, the school's population increased and its purpose began to evolve from a punitive program to a more rehabilitative and educational one. Due to these changes, the State School requested its name be changed to "Maple Lane Village." In 1959, the Legislature officially changed the name to Maple Lane School. Another change came with the inclusion of boys in the educational classes, beginning in 1961. At first the boys were bussed daily from Cedar Creek Youth Camp; they did not live at Maple Lane. Shortly thereafter, housing was constructed in order for the boys to become permanent residents at the former State School for Girls. The number of resident male offenders increased steadily over the ensuing months until the boys eventually outnumbered the girls on campus. In 1979, Cedar Creek Youth Camp was converted to a minimum-security adult correctional facility, and all remaining juvenile delinquent boys were removed from the Cedar Creek Youth Camp grounds.

By 1982, Maple Lane had once again experienced a shift, this time from a facility resembling a residential high school with minimal security to one housing murderers, rapists, and the worst of juvenile felons in the state. In January 1982, the last female at Maple Lane was sent to Echo Glen Children's Center in Issaquah, and the state institution originally established as the State School for Girls in 1913 became a male-only facility. The school operated as the all male Maple Lane Juvenile Detention Facility until its recent closure in the summer of 2011.

Buildings and Site



The Maple Lane School campus is comprised of approximately 55 acres (of a 209-acre site) along Old Highway 9 SW, in the I-5 corridor but near the edge of a largely rural and forested area. The campus is roughly semi-circular, with the highway providing a straight boundary to the northeast, while a curving minor roadway within the campus forms the remainder of the outer edge.

Bisecting the half circle is the entry road from which the school took its name—a maple tree-lined lane that terminates in front of the Administration Building. A formal sequence from the roadway onto campus is formed by two curvilinear concrete entry pylons, the long drive flanked by mature maple trees, and the "arrival" at the Administration Building, which dates from the earliest period of the campus. This pathway is also lined with historic streetlights. A perpendicular pathway extends east-west from in front of the Administration Building. The immediate context and historic site of the

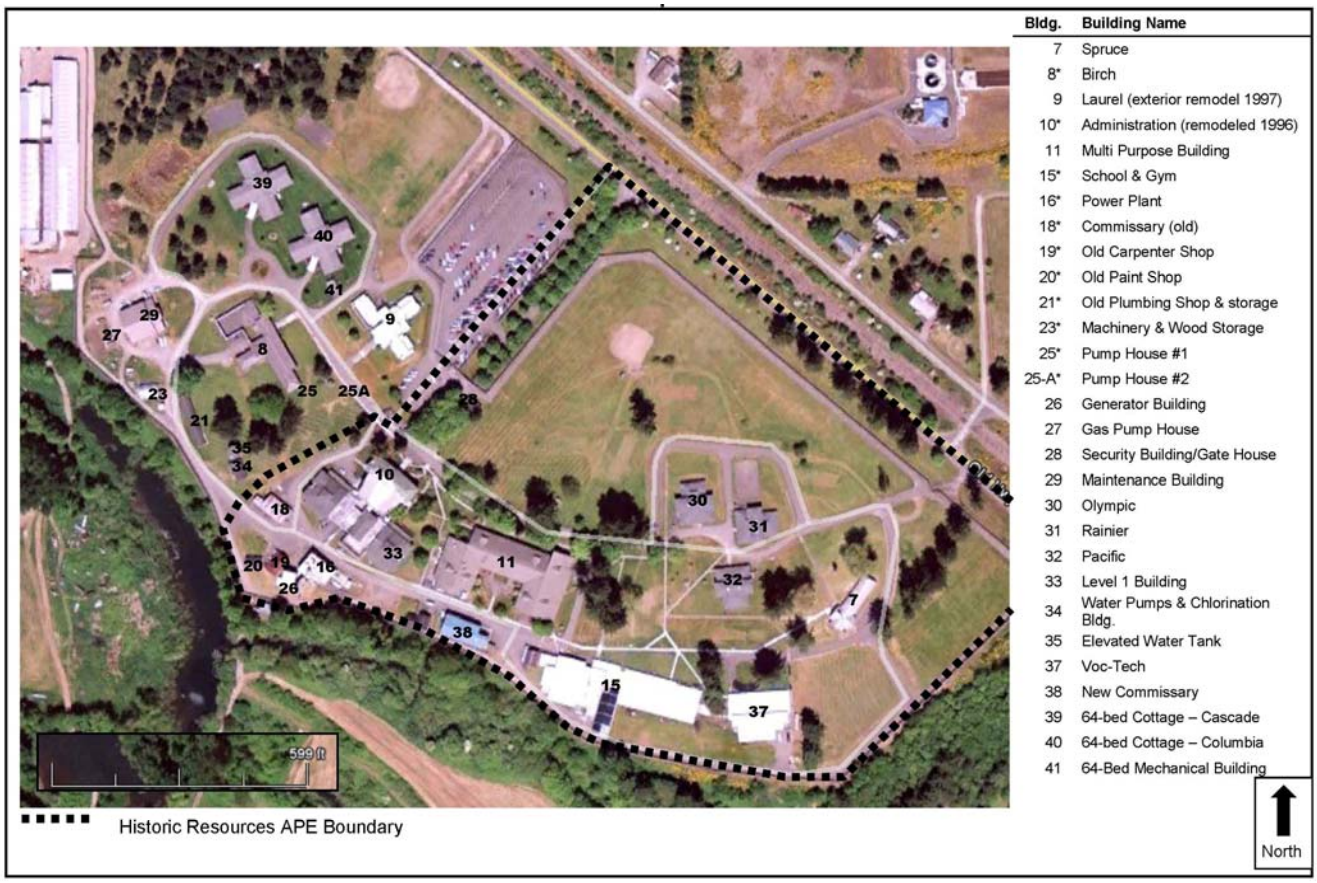
Administration Building is formed by these features, including approximately 120' of the east-west pathway to either side of the Administration Building.

Campus buildings are arranged along curvilinear road- and pathways. They are generally located along the southern and western portions of the site, divided from the main road by an expansive, grassy open space. The inner-ring roadway that continues east from the terminus of the lane in front of the Administration Building is lined with maples and conifers.

Buildings on the campus are not unified by any particular style, era, or architectural characteristics. The Administration Building is the only structure that remains from the original or early campus development. There are utilitarian structures that date from the early 1920s and 1930s, two buildings from 1951, and three utilitarian buildings constructed in 1961; but most of the living units were replaced or extensively remodeled in the 1990s, and the majority of buildings on campus date from the 1980s and 1990s.

For analysis of impacts, an APE has been defined as a portion of the campus surrounding the proposed project site, essentially the southeast section of the campus. The APE is generally bounded by the property line on the northeast (along Old Highway 9 SW), the maple-lined entry drive on the northwest, and a curving line that primarily follows the outer pathways of the site. (See **Figure 1, Historic Resources APE**).

Figure 1 – Historic Resources APE



Source: EA|Blumen, 2011

Figure 1
Thurston County Site - Area of Potential Effects

Maple Lane School is comprised of 29 buildings or structures, presented in **Table 1, Thurston County Site – Existing Buildings & Structures**. Sixteen (16) of these buildings are within the APE, and six (6) of these within the APE were constructed in 1962 or earlier. (See **Figure 2, APE Map with properties built 1962 or earlier**). Buildings within the APE are presented in **Table 2, Thurston County Site – Historic Resources Matrix**.

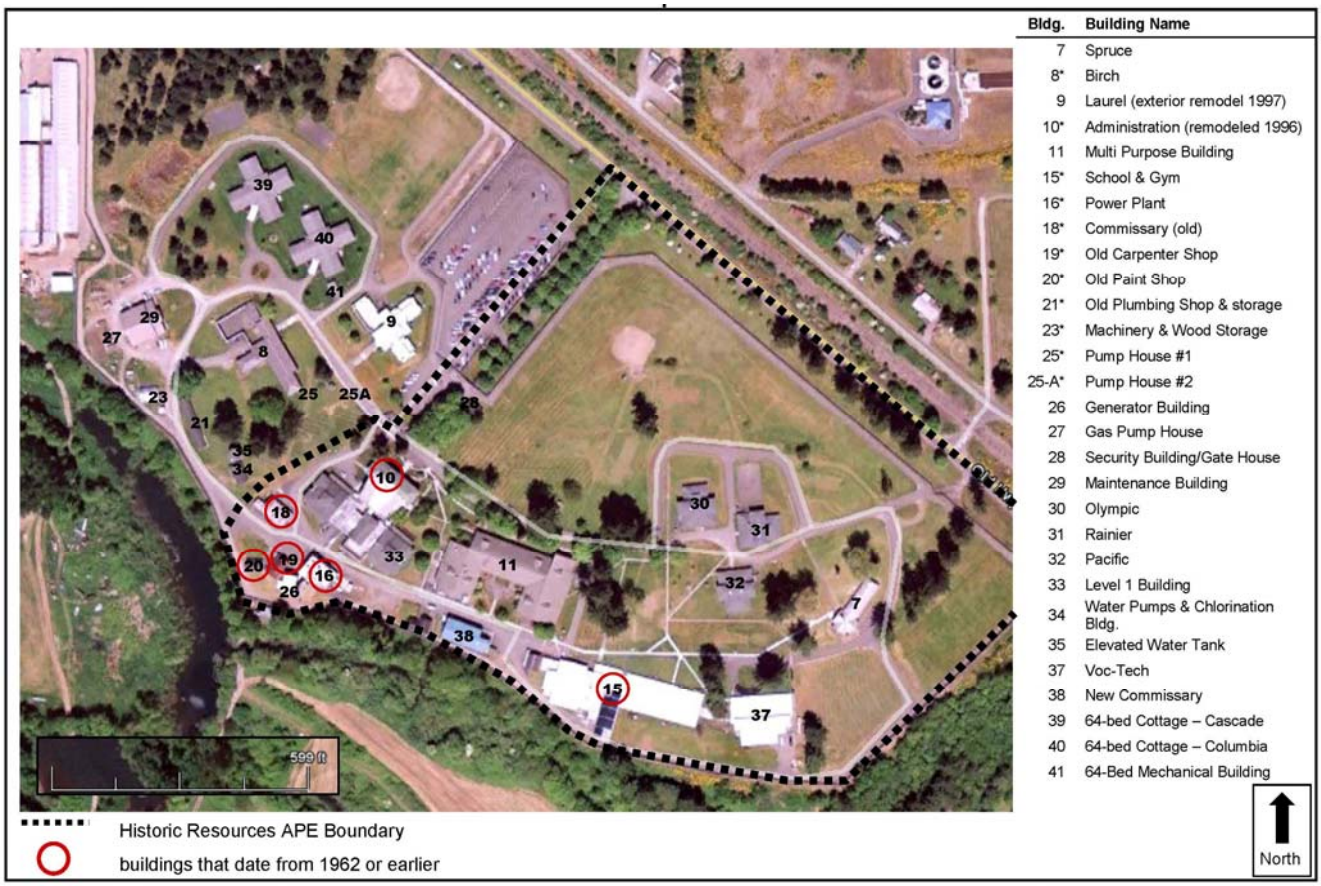
One (1) building within the APE, the Administration Building, is listed in the NRHP and WHR. There are six other buildings within the APE that were constructed in 1962 or earlier, but none of them appear to be eligible for individual listing in the NRHP, WHR, or Thurston County Historic Register. This is due either to building alterations or to insufficient historical or architectural significance to meet Criterion A or C as an individually listed property. (See the State Historic Property Inventory forms, appended at the end of this report, for further discussion of eligibility evaluation of each building.)

Table 1
THURSTON COUNTY SITE – EXISTING BUILDINGS & STRUCTURES

Bldg. #	Building Name	Year Built	Size (Sq. Ft.)
7	Spruce	1967	4,356
8*	Birch	1951	8,858
9	Laurel (exterior remodel 1997)	1971	7,750
10*	Administration (remodeled 1996)	1914	30,004
11	Multi Purpose Building	1982	30,346
15*	School & Gym	1951	33,000
16*	Power Plant	1920	3,840
18*	Commissary (old)	1961	3,600
19*	Old Carpenter Shop	1961	2,660
20*	Old Paint Shop	1961	2,660
21*	Old Plumbing Shop & storage	1920	2,400
23*	Machinery & Wood Storage	1930	1,090
25*	Pump House #1	1931	100
25-A*	Pump House #2	1931	100
26	Generator Building	1977	1,053
27	Gas Pump House	1979	342
28	Security Building/Gate House	1985	480
29	Maintenance Building	1987	10,327
30	Olympic	1993	7,319
31	Rainier	1993	7,319
32	Pacific	1993	7,319
33	Level 1 Building	1995	24,135
34	Water Pumps & Chlorination Bldg.		658
35	Elevated Water Tank		0
37	Voc-Tech	1998	10,450
38	New Commissary	1998	4,513
39	64-bed Cottage – Cascade	1998	16,618
40	64-bed Cottage – Columbia	1998	16,618
41	64-Bed Mechanical Building	1998	624

Source: Washington State DSHS, 2010.
***Indicates buildings 50 years or older as of 2012.**

Figure 2 – APE Map with properties built 1962 or earlier



Source: EA|Blumen, 2011

Figure 2
Thurston County Site - Existing Buildings

Table 2
THURSTON COUNTY SITE – HISTORIC RESOURCES MATRIX

Bldg. #	Building Name	Year Built	Listing Status	NRHP Eligibility Recommendation
7	Spruce	1967		Not eligible – age
10	Administration	1917	NRHP, WHR	
11	Multi Purpose Building	1982		Not eligible – age
15	School & Gym	1951		Not eligible
16	Power Plant	1920		Not eligible
18	Commissary (old)	1961		Not eligible
19	Old Carpenter Shop	1961		Not eligible
20	Old Paint Shop	1961		Not eligible
26	Generator Building	1977		Not eligible – age

Bldg. #	Building Name	Year Built	Listing Status	NRHP Eligibility Recommendation
28	Security Building/Gate House	1985		Not eligible – age
30	Olympic	1993		Not eligible – age
31	Rainier	1993		Not eligible – age
32	Pacific	1993		Not eligible – age
33	Level 1 Building	1995		Not eligible – age
37	Voc-Tech	1998		Not eligible – age
38	New Commissary	1998		Not eligible – age

Source: BOLA Architecture + Planning, 2011.

Historic Building Descriptions

For historic building descriptions, see the State Historic Property Inventory forms, appended at the end of this report.

Impacts of the Alternatives

Four alternatives have been identified for environmental analysis in this Draft EIS, including a No Action Alternative.

Bremerton Site

There are no historic resources on the Bremerton Site and no designated historic buildings identified in the immediately surrounding area. Therefore, no direct or indirect impacts to historic resources are anticipated.

Mason County Site

There are no historic resources on the Mason County Site and no designated historic buildings identified in the immediately surrounding area. Therefore, no direct or indirect impacts to historic resources are anticipated.

Thurston County Site

Description of the Proposed Alternative

Building Complex

Location of the proposed Westside Prison Reception Center on the Thurston County site would occupy approximately 55 acres (approximately 25 percent of the 209 acre site) consisting of buildings, surface parking, access drives and service/bus yard. Open space/landscaping would comprise an additional 10 acres (approximately 5 percent of the site). Approximately 20 acres of the existing Maple Lane Juvenile Detention Facility would remain (primarily in the area west of the existing maple tree-lined main access road). Development of the new Westside Prison Reception Center at this site would result in the intensification of the existing

governmental/institutional use. The 155-acre southern portion of the site (74 percent of the site) would remain in natural vegetation.

The majority of the reception center on this site would be located east of the existing maple tree-lined main access road, including the main reception center building and surface parking accommodating 100 public parking spaces. To accommodate reception center development, demolition of the following existing buildings associated with the previous Maple Lane Juvenile Detention Facility located east of the maple tree-lined access road would be required:

- Spruce (Building 7)
- Olympic (Building 30)
- Rainier (Building 31)
- Pacific (Building 32)

Certain existing buildings located east of the main access road would be remodeled and utilized for reception center functions, including:

- Voc-Tech Building (Building 37) that would be utilized for maintenance functions
- Multi-Purpose Building (Building 11) that would be utilized for food service and laundry
- New Commissary (Building 38) that would be utilized as a warehouse
- Power Plant and associated steam tunnels (Building 16)
- Generator building (Building 26)

Prison reception center uses in the portion of the site west of the main access road would include use of the existing approximately 200 space surface lot, creation of a new approximately 100 space staff parking lot and use of the existing maintenance building (Building 29) for bus barn use. No existing buildings west of the main access road would be demolished.

The remaining existing buildings on the Thurston County Site, including the historic Administration Building, would be retained in place but would not be reused for the prison reception center operations. These retained buildings would be maintained to a low level of operation to prevent damage or deterioration from mold, freezing, flooding, etc.

Vehicular Access and Parking

Two access drives would provide vehicular ingress/egress to the site from Old Highway 9 SW. The main access drive would be located in the center portion of the site—in the same location and of the same width as the original entry lane/driveway—and would provide primary access for staff and visitors. A secondary service drive would be located in the northeast portion of the site and would provide bus and service vehicle access.

The preliminary design concept indicates that the three proposed parking lots would provide approximately 400 spaces. Staff parking would be accommodated by two lots (one with 200 spaces and a second lot with 100 spaces) and public parking would be accommodated by a 100-space lot. A bus yard load/unload area and a service yard serving the warehouse would also be provided.

Construction Impacts

The four buildings planned for demolition are not historic. Potential indirect and/or temporary construction-related impacts of the Thurston County Site that could affect the Administration Building and its historic site include the following:

- Potential Structural Instability/Undermining – Damage that could occur to an historic resource due to structural instability caused by construction-related vibration and/or earthwork.

- Temporary Dirt/Unintended Damage – Introduction of atmospheric elements that may temporarily alter and/or potentially damage historic building fabric or architectural features.

Operational Impacts

Development of the new prison reception center building in proximity to the existing, historic Administration Building and its associated historic site would change the visual context/character of this historic resource. While the development of the *Westside Prison Reception Center* would be similar in general character to existing newer buildings on the site associated with the Maple Lane Juvenile Detention Facility, it would result in a more dense development on the campus and introduce additional parking immediately adjacent to the maple-lined driveway. The proposed project would essentially fill the open space to the east of the entry drive.

The preliminary design concept for the prison reception center leaves the historic Administration Building vacant.

Proposed Mitigation

- Potential Structural Instability/Undermining – Care should be taken in order to avoid structural damage to the nearby Administration Building that could occur due to construction-related vibrations and/or earthwork. All excavation, earthwork, pile driving, etc. should be designed and monitored in order to minimize and/or immediately address any such impacts to nearby or adjacent historic properties. Monitoring should include crack monitors placed on the Administration Building, periodic observation, and photography to document its structural integrity and determine whether there was resulting damage of interior or exterior finishes, or exterior masonry and/or framing. If such damage occurs as a result of the project, damage should be mitigated through repairs to the building.

- Temporary Dirt/Unintended Damage – Care should be taken in order to avoid or limit the introduction of atmospheric elements that could alter and/or potentially damage historic building fabric or architectural features of the nearby historic resource. All construction activity should be monitored in order to prevent and address any such impacts to the historic property. Consider limiting access near historic properties of construction vehicles carrying excavation materials. Dust control measures would be implemented (see **Section 3.2, Air Quality** of the DEIS for details).

- Administration Building & Associated Features, Context/Character of Surroundings – In order to preserve the historic formal approach sequence to the Administration Building, the proposed new surface parking adjacent to the entry drive should be held back from the edge of the drive, at least as far as existing fence line, to provide a visual buffer. The entry to this eastern lot should be designed to maintain the symmetrical line of existing trees along the lane and avoid removal of existing trees. The inner ring-road in front of the Administration Building should be retained beyond the east and west ends of the building to the extent feasible to maintain the historic context of tree-lined circulation pathways.

  If this site is selected, a cultural landscape report should be prepared to document the remaining historic landscape features associated with the Administration Building, consistent with the recommendations in *Preservation Brief 36: Protecting Cultural Landscapes*. A Cultural Landscape Report (CLR) documents the history, significance and treatment of a cultural landscape and evaluates its history and integrity, including any changes to its geographical context, features, materials, and use. CLRs are often prepared when a change is proposed, when they serve as a useful planning tool.

  Overhead utility wires should not be introduced to the campus. If new underground service is introduced, care should be taken to avoid root systems of existing trees. Within the historic site of the Administration Building, ground surface should be restored to existing conditions following installation of any new underground utilities.

- Disuse of Administration Building – As there is no proposed adaptive use for the historic Administration Building within the new Westside prison reception center program, it is critical that the historic building be properly preserved in the interim. A preservation plan, developed by a qualified project team, should include a cyclical maintenance program to be adopted by the DOC. The plan should include recommendations for ongoing and future maintenance of the historic landscape features, which consist of entry pylons, tree-lined roads, and historic streetlights. In the event that the Administration Building would no longer have appropriate heat, ventilation, and cyclical maintenance, it should be mothballed according to the recommendations laid out in *Preservation Brief 31: Mothballing Historic Buildings*.

  In the current proposal, no programmatic use has been identified for the Administration Building. In the future, consideration should be given to functions that may work within the building (such as staff offices and training, etc.).

Significant Unavoidable Adverse Impacts

With implementation of proposed mitigation measures, no significant unavoidable adverse impacts to historic resources are anticipated.

Resources

Birnbaum, Charles A. *Preservation Brief 36: Protecting Cultural Landscapes.* Washington, D.C.: U.S. Dept. of the Interior, National Park Service, Cultural Resources, Preservation Assistance, 1994. Available online: http://www.nps.gov/hps/TPS/briefs/brief36.htm

Boback, Brooke. Maple Lane Superintendent's House, Historic Property Inventory Report, 8/1/2008.

Chehalis Bee Nugget. "Two New Buildings at State Training School Will be Finished Within Week—Buildings Cost $19,344." October 16, 1931.

Christopher Murray & Associates. "Feasibility Study for the Closure of State Institutional Facilities—Part 2: Juvenile Rehabilitation Facilities." November 1, 2009.

"History of Maple Lane High School." Rochester School District website, no longer available.

Kitsap County Parcel Search. http://kcwppub3.co.kitsap.wa.us/ParcelSearch/.

"Maple Lane School." Washington Eugenics website. http://www.uvm.edu/~lkaelber/eugenics/WA/WA.html

Museum of History & Industry. Digital Photography Collection. http://www.seattlehistory.org/col_res.cfm.

Ott, Jen. "Washington State Reform School Opens in Chehalis on June 10, 1891," HistoryLink, the Online Encyclopedia for Washington State History. July 2, 2008. http://www.historylink.org/index.cfm?DisplayPage=output.cfm&file_id=8647

Park, Sharon C. *Preservation Brief 31: Mothballing Historic Buildings.* Washington, D.C.: U.S. Dept. of the Interior, National Park Service, Cultural Resources, Preservation Assistance, 1993. Available online: http://www.cr.nps.gov/hps/tps/briefs/brief31.htm

Riddell, Mark, Stationary Engineer, Maple Lane School, discussion with Sonja Molchany, October 20, 2011.

Shannon, Brad. "Maple Lane Gets Brief Reprieve." *The Olympian*, June 11, 2011.

Thurston County. Office of the Assessor, Parcel Search. http://tcproperty.co.thurston.wa.us/propsql/front_s.asp

Washington State.

Department of Archaeology and Historic Preservation (DAHP). "State Training School for Girls, Administration Building." Property Inventory Form, 1985.

Department of Health and Human Services (DSHS). "A History of Human Services." http://www.dshs.wa.gov/history.shtml

Session Laws of the State of Washington, Thirteenth Session. Compiled by I.M. Howell, Secretary of State, 1913.

Untitled report, developed for Maple Lane School closing ceremony held June 1, 2011.

Historic Inventory Report

Location

Field Site No. 10 DAHP No.

Historic Name: State School for Girls Administration Building

Common Name: Maple Lane Administration Building

Property Address: 20311 Old Highway 9 SW, Centralia, WA 98531

Comments:

Tax No./Parcel No. 13514210000

Plat/Block/Lot

Acreage

Supplemental Map(s)

Township/Range/EW	Section	1/4 Sec	1/4 1/4 Sec	County	Quadrangle
T15R03W	14			Thurston	ROCHESTER

Coordinate Reference

Easting: 1007049

Northing: 542009

Projection: Washington State Plane South

Datum: HARN (feet)

Identification

Survey Name: DOC Westside Reception Center, Thurston Co. Site 2011 Date Recorded: 11/04/2011

Field Recorder: Sonja Molchany

Owner's Name: Washington State General Administration

Owner Address:

City: State: Zip:

Classification: Building

Resource Status: Comments:

National Register

State Register

Within a District? No

Contributing?

National Register:

Local District:

National Register District/Thematic Nomination Name: State Training School For Girls Administration Building

Eligibility Status: Not Determined - SHPO

Determination Date: 1/1/0001

Determination Comments:

Description

Historic Use: Education - Education Related
Current Use: Education - Education Related
Plan: Other
Stories: 2
Structural System: Unknown
Changes to Plan: Intact
Changes to Interior: Moderate
Changes to Original Cladding: Intact
Changes to Windows: Slight
Changes to Other:
Other (specify):

Style:	Cladding:	Roof Type:	Roof Material:
Arts & Crafts	Brick - Stretcher Bond	Hip	Clay Tile

Foundation:	Form/Type:
Concrete - Poured	Other

Narrative

Study Unit
Other

Date of Construction:
1914 Built Date
1996 Remodel

Builder:

Engineer:

Architect: Vernon, Watson

Property appears to meet criteria for the National Register of Historic Places: Yes

Property is located in a potential historic district (National and/or local): No

Property potentially contributes to a historic district (National and/or local):

Statement of Significance:

The Administration Building was listed in the National Register of Historic Places in 1988. It is significant under Criteria A and C. The building is significantly associated with the development of state-run social service institutions in the early 20th century and represents the early stages of correctional care for juvenile girls in Washington. The school was the first institution of this type expressly building for girls, and its development mirrors society's view of women and their roles as well as the development of modern rehabilitation programs. Moreover, the school represents the role of women in a period of social change. Women were instrumental in the establishment of the institution, its subsequent management, and the development of the regimen and education for attending girls' rehabilitation. The Administration Building is the only remaining structure of the original institution. The design of the building reflects the goals of correctional care in the early part of the 20th century, through its internal courtyard and arrangement of rooms. In addition to housing administrative functions, the building was the first place girls came upon entering the institution, where they stayed while being evaluated, and where they were sent for observation before parole.
(excerpted and edited from 1985 inventory form/NR nomination)

Description of Physical Appearance:	The Administration Building is a central feature of the roughly semi-circular campus. Bisecting the half circle is the entry road from which the school took its name—a maple tree-lined lane that terminates in front of the Administration Building. A formal sequence from the roadway onto campus is formed by two curvilinear concrete entry pylons, the long drive flanked by mature maple trees, and the "arrival" at the Administration Building, which dates from the earliest period of the campus. This pathway is also lined with historic streetlights. A perpendicular pathway extends east-west from in front of the Administration Building. The immediate context and historic site of the Administration Building is formed by these features, including approximately 120' of the east-west pathway to either side of the Administration Building. The symmetrical composition of the primary facade, which is approximately 120' wide, is affirmed by the landscape treatment. The two-story building is trapezoidal in plan, with a rectangular front wing and a three-sided rear wing encircling a courtyard (now enclosed). The building is finished with smooth buff brick laid in running bond and a green tile hipped roof over the front wing. The primary north (northeast) facade is symmetrical, with a central entry porch recessed behind three large segmental-arched openings. A recessed balcony at the second-story is directly above. Arts & Crafts details include a deep roof overhang and large decorative brackets at the roof over the balcony. Windows are typically multi-light wood windows of various types. A symmetrically placed addition was made to the rear of the building in 1995. It is connected to the historic Administration Building only by two tall, exterior courtyard walls and thus appears easily reversible. (See 1985 inventory form/NR nomination for more extensive description.)
Major Bibliographic References:	Boback, Brooke. Maple Lane Superintendent's House, Historic Property Inventory Report, 8/1/2008. Washington State. Department of Archaeology and Historic Preservation (DAHP). State Training School for Girls, Administration Building. Property Inventory Form, 1985. Department of Health and Human Services (DSHS). A History of Human Services. http://www.dshs.wa.gov/history.shtml Session Laws of the State of Washington, Thirteenth Session. Compiled by I.M. Howell, Secretary of State, 1913. Untitled report, developed for Maple Lane School closing ceremony held June 1, 2011.

Photos

primary N facade
2011

note original lamps around end of entry lane
primary N facade
2011

looking W toward the Admin Bldg, showing context
2011

looking toward Admin Bldg from tree-lined entry lane
2011

W side of front wing
2011

Maple Lane/access drive, view toward Old Hwy 9
2011

entry pylon--one of two, which flank the access drive
2011

Historic Inventory Report

Location

Field Site No. 15 DAHP No.

Historic Name:

Common Name: Maple Lane School & Gym

Property Address: 20311 Old Highway 9 SW, Centralia, WA 98531

Comments:

Tax No./Parcel No. 13514210000

Plat/Block/Lot

Acreage

Supplemental Map(s)

Township/Range/EW	Section	1/4 Sec	1/4 1/4 Sec	County	Quadrangle
T15R03W	14			Thurston	ROCHESTER

Coordinate Reference

Easting: 1007513

Northing: 541503

Projection: Washington State Plane South

Datum: HARN (feet)

Identification

Survey Name: DOC Westside Reception Center, Thurston Co. Site 2011 Date Recorded: 11/04/2011

Field Recorder: Sonja Molchany

Owner's Name: Washington State General Administration

Owner Address:

City: State: Zip:

Classification: Building

Resource Status: Comments:
Survey/Inventory

Within a District? No

Contributing?

National Register:

Local District:

National Register District/Thematic Nomination Name:

Eligibility Status: Not Determined - SHPO

Determination Date: 1/1/0001

Determination Comments:

Description

Historic Use: Education - School
Current Use: Vacant/Not in Use
Plan: Irregular
Stories: 1
Structural System: Concrete - Reinforced Concrete
Changes to Plan: Intact
Changes to Interior: Moderate
Changes to Original Cladding: Moderate
Changes to Windows: Extensive
Changes to Other:
Other (specify):

Style:	Cladding:	Roof Type:	Roof Material:
Modern - Contemporary	Concrete - Poured	Gable	Other
Modern	Metal - Corrugated		
	Concrete - Block		

Foundation:	Form/Type:
Concrete - Poured	Other

Narrative

Study Unit
Other

Date of Construction:
1951 Built Date
1993 Remodel

Builder:
Engineer:
Architect:

Property appears to meet criteria for the National Register of Historic Places: No
Property is located in a potential historic district (National and/or local): No
Property potentially contributes to a historic district (National and/or local):

Statement of Significance: Maple Lane School, originally known as the State School for Girls, was established by the state in 1913 and opened the following year. Until then, the Washington State Reform School (renamed the State Training School in 1907) established in 1891, served boys and girls who had committed crimes or were orphans. These "inmates" were required to work—learning such skills as farming and carpentry—as well as receive an education.

In 1910, the Training School's Superintendent made a request to the Governor for separation of the boys and girls. The State Legislature enacted a law in 1913 that "establish[ed] a state school for girls in conjunction with the Washington State Training School" (Session Laws, Chapter 157). The establishing act specified that the site would be "within a radius of not less than one mile and not more than ten miles of the State Training School at Chehalis," that the superintendent and staff would be women, and that the girls would be instructed "in all of the branches usually taught in the grades of the common schools of the state, also in such trades and vocational occupations as may be found desirable." To be committed, a girl had to be "more than ten and under eighteen...[and] found delinquent under the juvenile delinquency law of this state." Once committed, the girl could be held until age 21, unless paroled or discharged earlier. Girls had to be mentally and physically healthy—"of sound mind," not subject to fits, and healthy enough to receive the discipline of the school.

The site near Grand Mound was selected and purchased for $20,000, and the school opened December 22, 1914. In addition to the educational regimen, the school offered "a virtual course in farming and animal husbandry...The girls milked cows, provided for bees, and harvested crops...They raised and slaughtered livestock and canned produce." (State Historic Property Inventory form, 1985.)

In the early 1950s, the school's population increased and its purpose began to evolve from a more punitive program to a more open one. Due to these changes, the State School requested its name be changed to "Maple Lane Village." In 1959, the Legislature officially changed the name to Maple Lane School. Another change came with the inclusion of boys in the educational classes, beginning in 1961. At first the boys were bussed daily from Cedar Creek Youth Camp; they did not live at Maple Lane. Shortly thereafter, housing was constructed in order for the boys to become permanent residents at the former State School for Girls. The number of resident male offenders increased steadily over the ensuing months until the boys eventually outnumbered the girls on campus. In 1979, Cedar Creek Youth Camp was converted to a minimum-security adult correctional facility, and all remaining juvenile delinquent boys were removed from the Cedar Creek Youth Camp grounds.

By 1982, Maple Lane had once again experienced a shift, this time from a facility resembling a residential high school with minimal security to one housing murderers, rapists, and the worst of juvenile felons in the state. In January 1982, the last female at Maple Lane was sent to Echo Glen Children's Center in Issaquah, and the state institution originally established as the State School for Girls in 1913 became a male-only facility. The school operated as the all male Maple Lane Juvenile Detention Facility until its recent closure in the summer of 2010.

The School & Gym dates from 1951, but has been updated since then. The school portion in particular was extensively remodeled in the 1990s. It has been significantly altered and does not appear eligible for individual listing in the NRHP.

Description of Physical Appearance:

The School & Gym consists of a concrete Modern-style gym portion, a swimming pool structure, and a long, low school portion. Each of the three components has a low-sloped gabled roof. The gym, which is a taller two-story volume, has glass block-filled openings to light the gymnasium space on the interior. The north & south facades of the gym portion are characterized by full-height concrete columns that project beyond the plane of the facade.

The school portion was extensively remodeled in the 1990s, including insertion of new windows and corrugated metal panel siding. The school's east gable end is finished with concrete masonry units and new window and door assemblies.

Major Bibliographic References:

Boback, Brooke. Maple Lane Superintendent's House, Historic Property Inventory Report, 8/1/2008.

Washington State.

Department of Archaeology and Historic Preservation (DAHP). "State Training School for Girls, Administration Building." Property Inventory Form, 1985.
Department of Health and Human Services (DSHS). "A History of Human Services." http://www.dshs.wa.gov/history.shtml
Session Laws of the State of Washington, Thirteenth Session. Compiled by I.M. Howell, Secretary of State, 1913.

Untitled report, developed for Maple Lane School closing ceremony held June 1, 2011.

Photos

general view of school & gym, view looking at N facade
2011

looking E with school in the foreground and pool, gym beyond
2011

S facade of school portion
2011

E facade, school portion
2011

N facade, gym portion
2011

W & partial view of N facade, gym portion
2011

Historic Inventory Report

Location

Field Site No. 16 DAHP No.

Historic Name:

Common Name: Maple Lane Power Plant

Property Address: 20311 Old Highway 9 SW, Centralia, WA 98531

Comments:

Tax No./Parcel No. 13514210000

Plat/Block/Lot

Acreage

Supplemental Map(s)

Township/Range/EW	Section	1/4 Sec	1/4 1/4 Sec	County	Quadrangle
T15R03W	14			Thurston	ROCHESTER

Coordinate Reference

Easting: 1006881

Northing: 541803

Projection: Washington State Plane South

Datum: HARN (feet)

Identification

Survey Name: DOC Westside Reception Center, Thurston Co. Site 2011 Date Recorded: 11/04/2011

Field Recorder: Sonja Molchany

Owner's Name: Washington State General Services

Owner Address:

City: State: Zip:

Classification: Building

Resource Status: Survey/Inventory Comments:

Within a District? No

Contributing?

National Register:

Local District:

National Register District/Thematic Nomination Name:

Eligibility Status: Not Determined - SHPO

Determination Date: 1/1/0001

Determination Comments:

Description

Historic Use: Industry/Processing/Extraction - Energy Facility

Current Use: Industry/Processing/Extraction - Energy Facility

Plan: Rectangle

Stories: 1

Structural System: Unreinforced Masonry

Changes to Plan: Moderate

Changes to Interior: Unknown

Changes to Original Cladding: Moderate

Changes to Windows: Moderate

Changes to Other: Moderate

Other (specify): Seismic upgrade

Style:	Cladding:	Roof Type:	Roof Material:
Other - Industrial	Brick - Common Bond	Flat with Parapet	Unknown

Foundation:	Form/Type:
Concrete - Poured	Industrial

Narrative

Study Unit

Other

Date of Construction:

1920 Built Date

1996 Remodel

Builder:

Engineer:

Architect:

Property appears to meet criteria for the National Register of Historic Places: No

Property is located in a potential historic district (National and/or local): No

Property potentially contributes to a historic district (National and/or local):

Statement of Significance:

Maple Lane School, originally known as the State School for Girls, was established by the state in 1913 and opened the following year. Until then, the Washington State Reform School (renamed the State Training School in 1907) established in 1891, served boys and girls who had committed crimes or were orphans. These inmates were required to work—learning such skills as farming and carpentry—as well as receive an education.

In 1910, the Training School's Superintendent made a request to the Governor for separation of the boys and girls. The State Legislature enacted a law in 1913 that establish[ed] a state school for girls in conjunction with the Washington State Training School (Session Laws, Chapter 157). The establishing act specified that the site would be within a radius of not less than one mile and not more than ten miles of the State Training School at Chehalis, that the superintendent and staff would be women, and that the girls would be instructed in all of the branches usually taught in the grades of the common schools of the state, also in such trades and vocational occupations as may be found desirable. To be committed, a girl had to be more than ten and under eighteen...[and] found delinquent under the juvenile delinquency law of this state. Once committed, the girl could be held until age 21, unless paroled or discharged earlier. Girls had to be mentally and physically healthy—of sound mind, not subject to fits, and healthy enough to receive the discipline of the school.

The site near Grand Mound was selected and purchased for $20,000, and the school opened December 22, 1914. In addition to the educational regimen, the school offered a virtual course in farming and animal husbandry...The girls milked cows, provided for bees, and harvested crops...They raised and slaughtered livestock and canned produce. (State Historic Property Inventory form, 1985.)

In the early 1950s, the school's population increased and its purpose began to evolve from a more punitive program to a more open one. Due to these changes, the State School requested its name be changed to Maple Lane Village. In 1959, the Legislature officially changed the name to Maple Lane School. Another change came with the inclusion of boys in the educational classes, beginning in 1961. At first the boys were bussed daily from Cedar Creek Youth Camp; they did not live at Maple Lane. Shortly thereafter, housing was constructed in order for the boys to become permanent residents at the former State School for Girls. The number of resident male offenders increased steadily over the ensuing months until the boys eventually outnumbered the girls on campus. In 1979, Cedar Creek Youth Camp was converted to a minimum-security adult correctional facility, and all remaining juvenile delinquent boys were removed from the Cedar Creek Youth Camp grounds.

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The Power Plant (also sometimes called the Steam Plant) dates from 1920 and was constructed to provide steam heat to the buildings on campus, via a network of utility tunnels. The building is significantly associated with Maple Lane School at dates from the early period of the institution's history. However, it has been significantly altered over time, both as technology changed and due to a seismic upgrade ca. 1996. As a result of this loss of integrity, the Power Plant does not appear eligible for individual listing in the NRHP.

Description of Physical Appearance:	The Power Plant is a very tall one-story building, characterized by its red brick finish with simple cast stone details and expansive multi-light industrial steel windows. Above a concrete base, brick walls are laid in common bond. A continuous soldier course wraps the building at the window header level. Square-shaped cast stone details are placed between window bays, near the roofline. These cast stone details are linked by another soldier course of brick running between them. A large, drive-through opening/passageway is located at the southernmost bay of the building. This originally provided access to a coal hopper, which is no longer in use. Approximately half the original window openings have been infilled with brick, as part of a seismic upgrade. Brick-clad pilasters were also added as part of this seismic work. Various lower-scale additions are visible on the east side of the building.
Major Bibliographic References:	Boback, Brooke. Maple Lane Superintendent's House, Historic Property Inventory Report, 8/1/2008. Washington State. Department of Archaeology and Historic Preservation (DAHP). State Training School for Girls, Administration Building. Property Inventory Form, 1985. Department of Health and Human Services (DSHS). A History of Human Services. http://www.dshs.wa.gov/history.shtml Session Laws of the State of Washington, Thirteenth Session. Compiled by I.M. Howell, Secretary of State, 1913. Untitled report, developed for Maple Lane School closing ceremony held June 1, 2011.

Photos

N facade and partial, oblique view of E
2011

NW corner, oblique view of N and W facades
2011

note drive-through south bay, infilled openings
W facade
2011

looking toward E facade
2011

Historic Inventory Report

Location

Field Site No. 18 DAHP No.

Historic Name:

Common Name: Maple Lane Old Commissary

Property Address: 20311 Old Highway 9 SW, Centralia, WA 98531

Comments:

Tax No./Parcel No. 13514210000

Plat/Block/Lot

Acreage

Supplemental Map(s)

Township/Range/EW	Section	1/4 Sec	1/4 1/4 Sec	County	Quadrangle
T15R03W	14			Thurston	ROCHESTER

Coordinate Reference

Easting: 1006787

Northing: 541948

Projection: Washington State Plane South

Datum: HARN (feet)

Identification

Survey Name: DOC Westside Reception Center, Thurston Co. Site 2011 Date Recorded: 11/04/2011

Field Recorder: Sonja Molchany

Owner's Name: Washington State General Services

Owner Address:

City: State: Zip:

Classification: Building

Resource Status: Comments:
Survey/Inventory

Within a District? No

Contributing?

National Register:

Local District:

National Register District/Thematic Nomination Name:

Eligibility Status: Not Determined - SHPO

Determination Date: 1/1/0001

Determination Comments:

Description

Historic Use: Other
Current Use: Other
Plan: Rectangle
Stories: 1
Structural System: Steel
Changes to Plan: Intact
Changes to Interior: Unknown
Changes to Original Cladding: Slight
Changes to Windows: Intact
Changes to Other:
Other (specify):

Style:	Cladding:	Roof Type:	Roof Material:
Other - Utilitarian	Metal - Corrugated	Gable	Metal - Corrugated

Foundation:	Form/Type:
Concrete - Poured	Utilitarian

Narrative

Study Unit
Other

Date of Construction:
1961 Built Date
Builder:
Engineer:
Architect:

Property appears to meet criteria for the National Register of Historic Places: No
Property is located in a potential historic district (National and/or local): No
Property potentially contributes to a historic district (National and/or local):

Statement of Significance:

Maple Lane School, originally known as the State School for Girls, was established by the state in 1913 and opened the following year. Until then, the Washington State Reform School (renamed the State Training School in 1907) established in 1891, served boys and girls who had committed crimes or were orphans. These "inmates" were required to work—learning such skills as farming and carpentry—as well as receive an education.

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The Old Commissary dates from 1961 and is now used for storage. It is a utilitarian building and not significantly associated with the history of Maple Lane School. It is not individually eligible for listing in the NRHP.

Description of Physical Appearance:

The Old Commissary is a completely utilitarian building. It is a simple rectangular box with corrugated metal cladding and roofing. A smaller, also rectangular extension projects from the west (northwest) side.

Major Bibliographic References:

Boback, Brooke. Maple Lane Superintendent's House, Historic Property Inventory Report, 8/1/2008.

Washington State.

Department of Archaeology and Historic Preservation (DAHP). "State Training School for Girls, Administration Building." Property Inventory Form, 1985.
Department of Health and Human Services (DSHS). "A History of Human Services." http://www.dshs.wa.gov/history.shtml
Session Laws of the State of Washington, Thirteenth Session. Compiled by I.M. Howell, Secretary of State, 1913.

Untitled report, developed for Maple Lane School closing ceremony held June 1, 2011.

Photos

looking E, showing W side and oblique view of S side
2011

S side
2011

Historic Inventory Report

Location

Field Site No. 19 DAHP No.

Historic Name:

Common Name: Maple Lane Old Carpenter Shop

Property Address: 20311 Old Highway 9 SW, Centralia, WA 98531

Comments:

Tax No./Parcel No. 13514210000

Plat/Block/Lot

Acreage

Supplemental Map(s)

Township/Range/EW	Section	1/4 Sec	1/4 1/4 Sec	County	Quadrangle
T15R03W	14			Thurston	ROCHESTER

Coordinate Reference

Easting: 1006786

Northing: 541811

Projection: Washington State Plane South

Datum: HARN (feet)

Identification

Survey Name: DOC Westside Reception Center, Thurston Co. Site 2011 Date Recorded: 11/04/2011

Field Recorder: Sonja Molchany

Owner's Name: Washington State General Services

Owner Address:

City: State: Zip:

Classification: Building

Resource Status: Comments:
Survey/Inventory

Within a District? No

Contributing?

National Register:

Local District:

National Register District/Thematic Nomination Name:

Eligibility Status: Not Determined - SHPO

Determination Date: 1/1/0001

Determination Comments:

Description

Historic Use: Other
Current Use: Other
Plan: Rectangle
Stories: 1
Structural System: Braced Frame
Changes to Plan: Intact
Changes to Interior: Unknown
Changes to Original Cladding: Moderate
Changes to Windows: Moderate
Changes to Other:
Other (specify):

Style:	Cladding:	Roof Type:	Roof Material:
Other - Utilitarian	Wood - T 1-11	Gable	Asphalt / Composition

Foundation:	Form/Type:
Concrete - Poured	Utilitarian

Narrative

Study Unit
Other

Date of Construction:
1961 Built Date
Builder:
Engineer:
Architect:

Property appears to meet criteria for the National Register of Historic Places: No
Property is located in a potential historic district (National and/or local): No
Property potentially contributes to a historic district (National and/or local):

Statement of Significance:

Maple Lane School, originally known as the State School for Girls, was established by the state in 1913 and opened the following year. Until then, the Washington State Reform School (renamed the State Training School in 1907) established in 1891, served boys and girls who had committed crimes or were orphans. These "inmates" were required to work—learning such skills as farming and carpentry—as well as receive an education.

In 1910, the Training School's Superintendent made a request to the Governor for separation of the boys and girls. The State Legislature enacted a law in 1913 that "establish[ed] a state school for girls in conjunction with the Washington State Training School" (Session Laws, Chapter 157). The establishing act specified that the site would be "within a radius of not less than one mile and not more than ten miles of the State Training School at Chehalis," that the superintendent and staff would be women, and that the girls would be instructed "in all of the branches usually taught in the grades of the common schools of the state, also in such trades and vocational occupations as may be found desirable." To be committed, a girl had to be "more than ten and under eighteen...[and] found delinquent under the juvenile delinquency law of this state." Once committed, the girl could be held until age 21, unless paroled or discharged earlier. Girls had to be mentally and physically healthy—"of sound mind," not subject to fits, and healthy enough to receive the discipline of the school.

The site near Grand Mound was selected and purchased for $20,000, and the school opened December 22, 1914. In addition to the educational regimen, the school offered "a virtual course in farming and animal husbandry...The girls milked cows, provided for bees, and harvested crops...They raised and slaughtered livestock and canned produce." (State Historic Property Inventory form, 1985.)

In the early 1950s, the school's population increased and its purpose began to evolve from a more punitive program to a more open one. Due to these changes, the State School requested its name be changed to "Maple Lane Village." In 1959, the Legislature officially changed the name to Maple Lane School. Another change came with the inclusion of boys in the educational classes, beginning in 1961. At first the boys were bussed daily from Cedar Creek Youth Camp; they did not live at Maple Lane. Shortly thereafter, housing was constructed in order for the boys to become permanent residents at the former State School for Girls. The number of resident male offenders increased steadily over the ensuing months until the boys eventually outnumbered the girls on campus. In 1979, Cedar Creek Youth Camp was converted to a minimum-security adult correctional facility, and all remaining juvenile delinquent boys were removed from the Cedar Creek Youth Camp grounds.

By 1982, Maple Lane had once again experienced a shift, this time from a facility resembling a residential high school with minimal security to one housing murderers, rapists, and the worst of juvenile felons in the state. In January 1982, the last female at Maple Lane was sent to Echo Glen Children's Center in Issaquah, and the state institution originally established as the State School for Girls in 1913 became a male-only facility. The school operated as the all male Maple Lane Juvenile Detention Facility until its recent closure in the summer of 2010.

The Old Carpenter Shop dates from 1961 (according to DSHS records) and is currently used for storage. It is a utilitarian building and not significantly associated with the history of Maple Lane School. This building is not individually eligible for the NRHP.

Description of Physical Appearance:	This utilitarian building has a simple rectangular plan with a gabled roof. Open eaves have exposed rafter tails. DSHS dates construction to 1961, but several fixed multi-light windows look older--either they were salvaged from another building, or the subject building was constructed earlier. The building is clad with T1-11 siding and windows at the south end look like newer aluminum windows.
Major Bibliographic References:	Boback, Brooke. Maple Lane Superintendent's House, Historic Property Inventory Report, 8/1/2008. Washington State. Department of Archaeology and Historic Preservation (DAHP). "State Training School for Girls, Administration Building." Property Inventory Form, 1985. Department of Health and Human Services (DSHS). "A History of Human Services." http://www.dshs.wa.gov/history.shtml Session Laws of the State of Washington, Thirteenth Session. Compiled by I.M. Howell, Secretary of State, 1913. Untitled report, developed for Maple Lane School closing ceremony held June 1, 2011.

Photos

note windows and door on E side look pre-1961
N & E sides
2011

newer windows on S side
S side
2011

view from above, showing N & E sides
2011

W side detail
2011

Historic Inventory Report

Location

Field Site No. 20 DAHP No.

Historic Name:

Common Name: Maple Lane Old Paint Shop

Property Address: 20311 Old Highway 9 SW, Centralia, WA 98531

Comments:

Tax No./Parcel No. 13514210000

Plat/Block/Lot

Acreage

Supplemental Map(s)

Township/Range/EW	Section	1/4 Sec	1/4 1/4 Sec	County	Quadrangle
T15R03W	14			Thurston	ROCHESTER

Coordinate Reference

Easting: 1006730

Northing: 541816

Projection: Washington State Plane South

Datum: HARN (feet)

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Changes to Windows: Unknown
Changes to Other:
Other (specify):

Style:	Cladding:	Roof Type:	Roof Material:
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In 1910, the Training School's Superintendent made a request to the Governor for separation of the boys and girls. The State Legislature enacted a law in 1913 that establish[ed] a state school for girls in conjunction with the Washington State Training School (Session Laws, Chapter 157). The establishing act specified that the site would be within a radius of not less than one mile and not more than ten miles of the State Training School at Chehalis, that the superintendent and staff would be women, and that the girls would be instructed in all of the branches usually taught in the grades of the common schools of the state, also in such trades and vocational occupations as may be found desirable. To be committed, a girl had to be more than ten and under eighteen...[and] found delinquent under the juvenile delinquency law of this state. Once committed, the girl could be held until age 21, unless paroled or discharged earlier. Girls had to be mentally and physically healthy—of sound mind, not subject to fits, and healthy enough to receive the discipline of the school.

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The Old Paint Shop dates from 1961 (according to DSHS records) and is currently used for storage. It is a utilitarian building and not significantly associated with the history of Maple Lane School. This building is not individually eligible for the NRHP.

Description of Physical Appearance:

This utilitarian building has a simple rectangular plan with a gabled roof. As with the nearby Old Carpenter Shop, DSHS dates construction to 1961, but some elements look older. The Paint Shop foundation is set into an embankment, so the basement-level/foundation is fully visible on the west side. This lower level looks like earlier construction than the crisp concrete pour at the main floor level. Fixed multi-light windows are located in the north and south walls, while the north and east ends have more recent aluminum windows. The building is clad with T1-11 siding.

Major Bibliographic References:

Boback, Brooke. Maple Lane Superintendent's House, Historic Property Inventory Report, 8/1/2008.

Washington State.

Department of Archaeology and Historic Preservation (DAHP). "State Training School for Girls, Administration Building." Property Inventory Form, 1985.
Department of Health and Human Services (DSHS). "A History of Human Services." http://www.dshs.wa.gov/history.shtml
Session Laws of the State of Washington, Thirteenth Session. Compiled by I.M. Howell, Secretary of State, 1913.

Untitled report, developed for Maple Lane School closing ceremony held June 1, 2011.

Photos

note how building is set into small hill
looking SE, showing N & W sides
2011

S & W sides
2011

SE corner and S side
2011

APPENDIX L

Population Estimates and Student Generation Numbers

BREMERTON SITE				Assumed Age of Population Based on Wa State Census Data				Grade Range of School Age Children (5-19) Based on Washington OSPI Data			
Location	% of Employees	Estimated # Employees	Total Population	<5 Years 7%	5-19 years 22%	>19 years 71%	TOTAL 100%	Grade 1-5 41%	Grade 6-8 25%	Grade 9-12 35%	TOTAL 100%
Belfair	6%	29	72	5	16	51	72	6	4	5	16
Allyn, Shelton & beyond	6%	29	72	5	16	51	72	6	4	5	16
Bremerton	21%	100	252	17	55	180	252	23	14	19	55
Port Orchard	15%	72	180	12	39	128	180	16	10	14	39
West of HW 16/East of Glenwood	11%	53	132	9	29	94	132	12	7	10	29
Gig Harbor	4%	19	48	3	11	34	48	4	3	4	10
Greater Tacoma Area	22%	105	264	18	58	188	264	24	14	20	58
Silverdale, Tracyton, Sheridan	6%	29	72	5	16	51	72	6	4	5	16
Bainbridge Island	1%	5	12	1	3	9	12	1	1	1	3
Kingston	3%	14	36	2	8	26	36	3	2	3	8
North beyond Hood Canal	2%	10	24	2	5	17	24	2	1	2	5
Greater Seattle Area	3%	14	36	2	8	26	36	3	2	3	8
TOTAL	**100%**	**478**	**1200**	**80**	**263**	**857**	**1,201**	**108**	**65**	**91**	**263**

NOTES

*** Percentages based on Heffron's Estimated Project Trip Distribution**

****Estimated employees = total employees (478) multiplied by percentage of employees in column B**

*****Total population = estimated employees in column C multiplied by state of Washington average household size, 2.51 (average household size identified in 2010 US Census)**

RED Cities are those within approximately 10 miles driving distance of site

MASON COUNTY SITE				Assumed Age of Population Based on Wa State Census Data				Grade Range of School Age Children (5-19) Based on Washington OSPI Data			
Location	**% of Employees**	**Estimated # Employees**	**Total Population**	**<5 Years 7%**	**5-19 years 22%**	**>19 years 71%**	**TOTAL 100%**	**Grade 1-5 41%**	**Grade 6-8 25%**	**Grade 9-12 35%**	**TOTAL 100%**
Shelton	24%	115	288	19	63	206	288	26	16	22	63
West of Shelton	2%	10	24	2	5	17	24	2	1	2	5
West MasonCounty (within 10-miles of site)	3%	14	36	2	8	26	36	3	2	3	8
West Mason County (over 10-miles from site)	4%	19	48	3	11	34	48	4	3	4	10
North of Shelton	5%	24	60	4	13	43	60	5	3	5	13
Northern Mason County	3%	14	36	2	8	26	36	3	2	3	8
Greater Hoodsport Area	4%	19	48	3	11	34	48	4	3	4	10
Northeastof Shelton	1%	5	12	1	3	9	12	1	1	1	3
Greater Belfair, Bremerton Area	7%	33	84	6	18	60	84	8	5	6	18
South of Shelton	2%	10	24	2	5	17	24	2	1	2	5
Southwest of Shelton	4%	19	48	3	11	34	48	4	3	4	10
Southeast - north of 108	2%	10	24	2	5	17	24	2	1	2	5
Greater McCleary, Elma Area	2%	10	24	2	5	17	24	2	1	2	5
South Mason County -north of HW 8	3%	14	36	2	8	26	36	3	2	3	8
South Mason County - south of HW 8	3%	14	36	2	8	26	36	3	2	3	8
Northwest of Olympia	1%	5	12	1	3	9	12	1	1	1	3
Olympia	4%	19	48	3	11	34	48	4	3	4	10
Lacy	12%	57	144	10	32	103	144	13	8	11	31
Tumwater	3%	14	36	2	8	26	36	3	2	3	8
South beyond Tumwater	4%	19	48	3	11	34	48	4	3	4	10
Dupont, Lakewood, Greater Tacoma Area	7%	33	84	6	18	60	84	8	5	6	18
		0	0								
TOTAL	**100%**	**478**	**1200**	**80**	**263**	**857**	**1,200**	**107**	**65**	**91**	**262**

NOTES

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THURSTON COUNTY SITE				Assumed Age of Population Based on Wa State Census Data				Grade Range of School Age Children (5-19) Based on Washington OSPI Data			
Location	% of Employees	Estimated # Employees	Total Population	<5 Years 7%	5-19 years 22%	>19 years 71%	TOTAL 100%	Grade 1-5 41%	Grade 6-8 25%	Grade 9-12 35%	TOTAL 100%
Rochester	10%	48	120	8	26	86	120	11	6	9	26
Grand Mound	3%	14	36	2	8	26	36	3	2	3	8
Centralia	30%	143	360	24	79	257	360	32	19	27	79
Chehalis	3%	14	36	2	8	26	36	3	2	3	8
South, beyond Chehalis	5%	24	60	4	13	43	60	5	3	5	13
Greater Oakville & Elma Area	2%	10	24	2	5	17	24	2	1	2	5
Tenino	1%	5	12	1	3	9	12	1	1	1	3
North of Tenino - East of I-5	4%	19	48	3	11	34	48	4	3	4	10
North of Rochester - West of I	5%	24	60	4	13	43	60	5	3	5	13
Lacey	10%	48	120	8	26	86	120	11	6	9	26
Olympia	3%	14	36	2	8	26	36	3	2	3	8
Yelm	3%	14	36	2	8	26	36	3	2	3	8
Roy	2%	10	24	2	5	17	24	2	1	2	5
Dupont	2%	10	24	2	5	17	24	2	1	2	5
Lakewood, Spanway & Greate	10%	48	120	8	26	86	120	11	6	9	26
Between Hwy 8 &101	4%	19	48	3	11	34	48	4	3	4	10
Greater Shelton Area	3%	14	36	2	8	26	36	3	2	3	8
TOTAL	**100%**	**478**	**1200**	**80**	**263**	**857**	**1,200**	**107**	**65**	**91**	**262**

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