November 2016

Federal Way Link Extension

Final Environmental Impact Statement

ECOSYSTEMS TECHNICAL REPORT

Appendix G2

SOUNDTRANSIT
Central Puget Sound
Regional Transit Authority

U.S. Department of Transportation
Federal Transit Administration

SOUNDTRANSIT

Federal Way Link Extension

Ecosystems Technical Report

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Acronyms and Abbreviations

BMP	best management practice
CFR	Code of Federal Regulations
Ecology	Washington State Department of Ecology
EFH	essential fish habitat
EIS	environmental impact statement
EO	Executive Order
ESA	Endangered Species Act
FTA	Federal Transit Administration
FWLE	Federal Way Link Extension
GIS	geographic information system
GPS	global positioning system
I-5	Interstate 5
LWD	large woody debris
MBTA	Migratory Bird Treaty Act
NA	not applicable
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	U.S. Department of Agriculture Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	ordinary high water mark
PAB	palustrine aquatic bed
PEM	palustrine emergent
PFO	palustrine forested
POW	open water
PSS	palustrine scrub-shrub
SR	State Route

SS	scrub-shrub
TPSS	traction power substation
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation

1.0 Introduction

An ecosystem is the complex of a community of organisms and its environment functioning as an ecological unit (Merriam Webster Dictionary, 2013). Ecosystems are composed of living organisms, and the environment they inhabit. This Ecosystems Technical Report identifies existing natural resources in the project vicinity and documents the ecosystem components along and near the alternatives for the Federal Way Link Extension (FWLE). The resources evaluated include wetlands, aquatic species and habitat, threatened and endangered species, vegetation, wildlife, and wildlife habit.

Following the release of the Draft Environmental Impact Statement (EIS) for the FWLE (Sound Transit and Federal Transit Administration, 2015), the Sound Transit Board identified the I-5 Alternative as the Preferred Alternative. Updates in this technical report reflect changes in ecosystem regulations and listed species, refinements of the project design, and the results of wetlands delineation and field surveys for the Biological Assessment prepared for the FWLE. It also addresses long-term and construction impacts for the Preferred Alternative and the other FWLE alternatives.

1.1 Data Gathered

Sound Transit conducted a literature and data review to identify and characterize potentially affected resources in the project vicinity. Existing documentation and information was compiled and reviewed first, so that the field reconnaissance effort could focus on filling information gaps. Existing ecosystem information was gathered from local, state, and federal agencies. This information included published and unpublished reports, maps, web sites, aerial photographs, and communications from agency staff familiar with resources within the project vicinity. The data sources are listed in the following subsections and in Chapter 6, References.

1.1.1 Agency and Public Contacts

Sound Transit contacted the following federal, state, and county agencies, tribes, and local jurisdictions for current information related to ecosystems resources:

- U.S. Army Corps of Engineers (USACE)
- U.S. Environmental Protection Agency (USEPA)
- Confederated Tribes and Bands of the Yakama Nation
- Muckleshoot Indian Tribe
- Puyallup Tribe of Indians
- Snoqualmie Indian Tribe
- Stillaguamish Tribe of Indians of Washington
- Suquamish Tribe of the Port Madison Reservation

- Duwamish Tribe (not federally recognized) [1]
- Snohomish Tribe (not federally recognized) [1]
- Washington State Department of Ecology (Ecology)
- Washington Department of Fish and Wildlife (WDFW)
- Washington Department of Transportation (WSDOT)
- King County
- City of SeaTac
- City of Des Moines
- City of Kent
- City of Federal Way

1.1.2 Maps and Existing Documentation

The following maps and other existing documents were reviewed to identify ecosystem features within the project vicinity:

- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory web site (USFWS, 2013)
- U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) soil survey maps (NRCS, 2013)
- Critical areas maps from local jurisdictions
  - City of SeaTac Municipal Code Title 15, Zoning Code
  - City of Des Moines Critical Area Map Series (2010)
  - City of Kent City Code Chapter 11.06, Critical Areas
  - City of Federal Way Critical Areas Map (2013)
  - King County Code Title 21A.24, Critical Areas
- King County (1991) Wetlands Inventory
- USFWS (2016) Information for Planning and Conservation (IPaC) system
- National Oceanic and Atmospheric Administration (NOAA Fisheries) (2013) Endangered Species Act Status of West Coast Salmon and Steelhead List
- StreamNet (2014) online data for Pacific Northwest salmonid and critical habitat distribution
- WDFW Salmonscape (WDFW, 2016)
- WDFW (2015) Priority Habitat and Species database
- Washington Department of Natural Resources (WDNR) Forest Practice Applications Review Stream Typing Online Mapper (2014a)
- WDNR Natural Heritage Information Request Self-Service System (WDNR, 2014b)
- Project aerial photography

[1] The Duwamish Tribal Organization and Snohomish Tribe of Indians currently are not recognized by the United States as Indian tribes under the meaning of U.S. law.

- Water Resource Inventory Area (WRIA) 9 Limiting Factors analysis and appendix maps (Kerwin and Nelson, 2000)
- Mapping information from sources such as wetland delineation reports and stream studies conducted for other projects, as available

1.2 Related Laws, Regulations, and Guidelines

Wetlands, aquatic species and habitat, vegetation, wildlife and their habitat, and threatened and endangered species that may be affected by project activities are subject to the following regulations, programs, plans, and policies.

1.2.1 Federal

- Bald and Golden Eagle Protection Act
- Sections 401, 402, and 404 of the Clean Water Act
- *Corps of Engineers Wetland Delineation Manual* (USACE, 1987)
- *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* Version 2.0 (USACE, 2010)
- Final Rule on Compensatory Mitigation for Losses of Aquatic Species and Habitat (USACE and USEPA, 2008)
- Coastal Zone Management Act
- Section 7 of the Endangered Species Act (ESA)
- Magnuson-Stevens Fishery Conservation and Management Act
- Migratory Bird Treaty Act
- National Environmental Policy Act
- Protection of Wetlands, Presidential Executive Order (EO) 11990

1.2.2 State

- Washington State Environmental Policy Act
- Hydraulic code (Washington Administrative Code [WAC] Chapter 220-110)
- Shoreline Management Act
- Washington State Growth Management Act
- Protection of Wetlands, Governor's EO 89-10
- Protection of Wetlands, Governor's EO 90-04
- Water Pollution Control Act, Chapter 90.48 Revised Code of Washington
- *Wetland Mitigation in Washington State* (Ecology et al., 2006)

1.2.3 Local

Since the publication of the FWLE Draft EIS, several local jurisdictions in the project vicinity have updated their critical areas ordinances. The Final EIS reflects codes current as of July 2016.

- Critical Area Ordinance - City of SeaTac (Chapter 15.700, Environmentally Sensitive Areas)
- Critical Area Ordinance - City of Des Moines (Chapter 16.10, Environmentally Critical Areas)
- Critical Area Ordinance - City of Kent (Chapter 11.06, Critical Areas)
- Critical Area Ordinance - City of Federal Way (Chapter 19.145, Critical Areas)
- Critical Area Ordinance - King County (Title 21A.24, Critical Areas)
- King County In-Lieu Fee Mitigation Program
- Sound Transit Environmental Policy (2004)
- *Sound Transit Sustainability Plan* (2015)

1.3 Study Areas

1.3.1 Wetlands

The study area for wetlands encompasses the area within 300 feet of the edge of the long-term operational footprint. The footprint includes the physical footprint of the light rail guideway, stations, permanent road improvements, and other project facilities. This distance was selected to match the typical largest applicable wetland buffer width in the area and encompasses potential effects from short-term construction impacts and long-term operational impacts. Wetlands evaluated for the Final EIS include wetlands that are wholly or partly in the study area. Maps are included in Section 3.0.

1.3.2 Aquatic Species and Habitat

Aquatic habitat includes streams and other non-wetland waters such as ponds and lakes. The study area for aquatic species and habitat is defined as:

- 100 feet upstream and 300 feet downstream of each stream that would cross the long-term operational footprint and short-term construction footprint, and
- The entire stretch of any stream paralleling the long-term footprint or stream habitat features within 200 feet of the edge of the long-term footprint

1.3.3 Vegetation and Wildlife Resources

The study area for vegetation and wildlife habitat is defined as areas in the long-term operational and short-term construction footprint where clearing, grading, and operating construction machinery would occur, and the areas 200 feet beyond the edge of the long-term footprint. To analyze wildlife potentially affected by project-related noise and human activity, biologists also reviewed documented occurrences of sensitive wildlife species within 0.25 mile of the alternatives.

Appendices (on CD and the FWLE website) provide additional information supporting the ecosystems resources evaluation. Appendix A describes the wetland delineation methodology. Appendices B and C provide wetland determination data forms and Ecology wetland rating forms. Appendix D presents photographs of the wetland and streams discussed, and Appendix E summarizes wetland and stream impacts within the study area. Appendix F describes best management practices for ecosystems resources. Appendix G includes maps of upland habitat in the study area. Appendix H summarizes long-term ecosystem impacts by subbasin. Appendix I includes the Biological Assessment and concurrence from the USFWS on FTA's finding under the Endangered Species Act.

2.0 Study Objectives and Methods

This chapter describes the objectives and methods used to study wetlands, aquatic species and habitat, threatened and endangered species, vegetation, terrestrial wildlife, and wildlife habitat, as well as impact assessment methods and assumptions. Sound Transit and the Federal Transit Administration (FTA) prepared and circulated a draft *Sound Transit Federal Way Link Extension Technical Analysis Methodologies* report in September 2013, and invited cooperating and participating agencies to review and comment. The discussion in this chapter is based on the approach defined in the *Sound Transit Federal Way Link Extension Technical Analysis Methodologies* (CH2M HILL, 2014), and incorporates further detail from field surveys and documentation that were performed or became available after publication of the Draft EIS.

2.1 Wetlands

2.1.1 Study Objectives

Available data from previous reconnaissance surveys show that there are wetlands in the project limits of all build alternatives. The specific objectives of this study include the following:

- Identify, map, and describe the wetlands and wetland buffers within 300 feet of the FWLE alternatives
- Determine potential impacts on wetlands associated with each alternative or option
- Describe potential measures to avoid, minimize, or compensate for impacts

2.1.2 Methods

This section summarizes the methods used to identify, evaluate, and assess impacts on wetlands.

2.1.2.1 Review of Existing Maps and Documentation

Biologists reviewed existing maps and other documentation to identify known wetlands in the study area and vicinity (see Section 1.1.2). Existing geographic information system (GIS) data were gathered from the USFWS National Wetlands Inventory; the cities of SeaTac, Des Moines, Kent, and Federal Way; and King County. These databases were the primary mapping tools used to inform field reconnaissance efforts.

2.1.2.2 Agency Coordination

Sound Transit contacted staff from the cities of SeaTac, Des Moines, Kent, and Federal Way, and King County for their critical area maps and information on any wetlands that may have been identified subsequent to finalization of these maps. This search included documentation associated with recent permit applications or code violations.

2.1.2.3 Wetland Delineation and Field Reconnaissance

After collecting and reviewing existing information, biologists first conducted field reconnaissance surveys within the study area to identify, map, and describe wetlands that could be affected by the

FWLE. Wetland field reconnaissance surveys were conducted during March 2013, January through March 2014, and December 2015.

Because wetlands in the study area are generally outside of the public right-of-way, most wetlands were visually surveyed from the public right-of-way—in most cases from the nearest road or sidewalk. Rights-of-entry were obtained for access to the following publicly-owned sites where direct impacts on wetlands could occur:

- City of Kent-owned parcels at the Massey Creek Wetland complex south of Kent-Des Moines Road
- City of Des Moines-owned parcel north of S 263rd Street and west of State Route (SR) 99
- City of Federal Way-owned parcels between Redondo Way S and SR 99
- Segments of WSDOT-administered right-of-way on the west side of Interstate 5 (I-5) between S 221st and S 224th Streets, south of S 240th Street, south of S 260th Street, south of 272nd Street, north and south of S 288th Street, north and south of S 296th Street, and south of Military Road South

Parcels and right-of-way segments that were accessed during the field reconnaissance surveys are shown on maps in Appendix E. At these sites, biologists documented vegetation, soil, and hydrology conditions at representative wetland and upland sample plots using methods outlined in the *Corps of Engineers Wetland Delineation Manual* (USACE, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* Version 2.0 (USACE, 2010). Detailed information on methods used for wetland identification and delineation is provided in Appendix A. Wetland determination data forms for all wetlands that were directly accessed during field reconnaissance surveys are included in Appendix B. General observations of existing conditions and characteristics were also recorded for each wetland and associated buffer.

Potential wetlands in areas not directly accessible during field reconnaissance surveys were assessed to the extent possible based on visual observations from public areas; current local, state, and federal habitat maps and reports; and the examination of aerial photographs. Areas outside of the WSDOT or other public rights-of-way that appeared to possess wetland indicators for vegetation, soil, and hydrology were included in the analysis to estimate each alternative's impacts.

2.1.2.4 Mapping

Each wetland identified in the study area received a unique identifier that was tracked in a GIS database. As new information was collected on project wetlands, data were recorded in an Excel spreadsheet and linked to the GIS data. Wetland delineation data sample plots described in Section 2.1.2.3 and wetland boundaries that were documented at sites accessed during the field reconnaissance were mapped in the field using a global positioning system (GPS). Wetlands that were not accessible during field reconnaissance surveys were mapped based on documentation and surveys from other sources. Only those wetlands within the Preferred Alternative study area, where right of entry was granted to Sound Transit, were delineated during the preparation of the Final EIS.

2.1.2.5 Rating and Classification of Wetlands

Wetlands identified in the study area during the March 2013 and January through March 2014 field reconnaissance surveys were rated and the hydrogeomorphic classification system was determined using the *Washington State Wetland Rating System for Western Washington, Revised* (Hruby, 2004), which was the current rating system at the time of field investigations. Wetlands identified in the study area during December 2015 surveys were rated using *Washington State Wetland Rating System for Western Washington: 2014 Update* (Hruby, 2014), which became effective January 1, 2015. Both Ecology wetland rating systems define three main wetland functions: water quality treatment, hydrologic support, and habitat. The degree to which multiple functions are performed by a wetland (e.g., enhancing water quality, reducing floods, and providing fish and wildlife habitat) results in category assignment, with Category I offering the highest function and Category IV offering the lowest.

With the exception of the City of SeaTac, which uses its own wetland rating system, the local jurisdictions in the study area have adopted Ecology's rating system without modification. Wetlands in the city of SeaTac were evaluated using the Ecology rating system to provide uniform criteria for evaluating wetland functions in the study area. Wetlands in the city of SeaTac were also assigned ratings based on local critical area requirements for the applicable local jurisdiction in order to determine prescriptive buffers. A summary of the rating systems and criteria is provided in Table 2-1.

Biologists assigned preliminary wetland buffers to the identified wetlands in the study area based on the local wetland rating systems and utilized Ecology (2015) guidance to convert wetland function scores between the 2004 and 2014 rating systems, as applicable by jurisdiction. A summary of the buffer width requirements for each of the affected jurisdictions is presented in Table 2-2.

Wetland habitats in the study area were classified using the system outlined by the USFWS in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979), typically referred to as the Cowardin Classification System. The Cowardin system classifies wetlands based on the dominant vegetation structure and water regime. Table 2-3 shows the definitions of Cowardin habitat classes present in the study area.

2.2 Aquatic Species and Habitat

2.2.1 Study Objectives

The purpose of this investigation was to describe the aquatic resources and habitat in the FWLE study area and evaluate the potential impacts of each project alternative and option. Specific objectives of this study include the following:

- Identify fisheries resources, such as anadromous and resident species reported to inhabit water bodies within the study area.

TABLE 2-1
Summary of Wetland Rating Systems by Municipality

Regulatory Agency	Wetland Category			
	I	II	III	IV
Washington State Department of Ecology[a] City of Kent[b] City of Des Moines[c] City of Federal Way[d] King County[e]	Category I wetlands: • Represent a unique or rare wetland type; or • Are more sensitive to disturbance than most wetlands; or • Are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime; or • Provide a high level of functions. Specific wetlands that meet the Category I criteria include: 1. Relatively undisturbed estuarine wetlands over one acre in size 2. Natural Heritage Wetlands, specifically, wetlands identified by the Washington Natural Heritage Program/Department of Natural Resources as high quality relatively undisturbed wetlands; and wetlands that support state-listed threatened or endangered plants 3. Bogs 4. Mature and old-growth forested wetlands over one acre in size 5. Wetlands in coastal lagoons 6. Wetlands that perform many functions very well, as indicated by a score of 70 or more points out of 100 on the 2004 wetland rating form or 23 or more points out of 27 on the 2014 wetland rating form	Category II wetlands are difficult, though not impossible, to replace, and provide high levels of some functions. Specific wetlands that meet the Category II criteria include: 1. Estuarine wetlands less than one acre in size, or disturbed estuarine wetlands larger than one acre 2. Interdunal wetlands greater than one acre 3. Wetlands scoring between 51 and 69 points out of 100 on the 2004 wetland rating form or wetlands scoring between 20 and 22 points out of 27 on the 2014 form	Category III wetlands provide a moderate level of functions. Specific wetlands that meet the Category III criteria include: 1. Interdunal wetlands between 0.1 acre and 1.0 acre in size 2. Wetlands scoring between 30 and 50 points out of 100 on the 2004 wetland rating form or wetlands scoring between 16 and 19 points out of 27 on the 2014 form	Category IV wetlands have the lowest levels of functions and are heavily disturbed. Specific wetlands that meet the Category IV criteria include: 1. Wetlands scoring less than 30 points out of 100 on the 2004 wetland rating form or wetlands scoring less than 16 points out of 27 on the 2014 form
City of SeaTac[f]	Class I Wetland. Only includes wetlands assigned the Unique/Outstanding #1 rating in the 1983 King County Wetlands Inventory (or the most recent City inventory) or which meet any of the following criteria: 1. Are wetlands which have present species listed by the federal or state government as endangered or threatened or outstanding actual habitat for those 2. Are wetlands which have 40% to 60% permanent open water in dispersed patches with two or more classes of vegetation 3. Are wetlands equal to or greater than 10 acres in size and have three or more wetland classes, one of which is open water 4. Are wetlands which have present plant associations of infrequent occurrence 5. Sphagnum or peat wetlands 6. Forested wetlands equal to or greater than 1 acre in size	Class II Wetland. Only includes wetlands assigned the Significant #2 rating in the 1983 King County Wetlands Inventory (or the most recent City inventory) or which meet any of the following criteria: 1. Are wetlands greater than 1 acre in size 2. Are wetlands equal to or less than 1 acre in size and have three or more wetland classes 3. Are forested wetlands less than 1 acre in size but are larger than 2,500 square feet 4. Are wetlands which have present heron rookeries or raptor nesting trees	Class III Wetland. Only includes wetlands assigned the Lesser Concern #3 rating in the 1983 King County Wetlands Inventory (or most recent City inventory) or which are wetlands equal to or less than 1 acre in size and have two or fewer wetland classes. This does not include drainage ditches used as part of an approved public storm drainage system that may support wetland vegetation, or retention/detention systems.	Not used

[a] Hruby (2004, 2014).
[b] Kent City Code 11.06.580.
[c] City of Des Moines Municipal Code 18.04.663.
[d] City of Federal Way Revised Code 19.145.420.
[e] King County Critical Areas Ordinance, King County Code 21A.24.318.
[f] City of SeaTac Municipal Code 15.10.675.

TABLE 2-2
Summary of Wetland Buffer Widths by Municipality

Wetland Classification	City of SeaTac Buffer Width (feet)[a]	City of Des Moines Buffer Width (feet)[b]	City of Kent Buffer Width (feet)[c]	City of Federal Way Buffer Width (feet)[d]	King County Buffer Width (feet)[e]
I	100	100-300	125-225	75-225	125-215
II	50	100-300	75-200	75-225	100-200
III	35	80-150	60-110	60-225	75-125
IV	NA	50	40-50	40	50

[a] City of SeaTac Municipal Code 15.700.280. Additional buffer may apply in steep slope areas. Additional building setbacks apply.
[b] City of Des Moines Municipal Code 16.10.120. Buffer widths vary with wetland function scores for habitat and water quality.
[c] City of Kent City Code 11.06.600. Buffer width varies with habitat score.
[d] City of Federal Way Revised Code 19.145.420; no wetland buffer is required for those isolated wetlands 1,000 square feet or less in total area
[e] King County Code 21A.24.325.
NA = not applicable

TABLE 2-3
Summary of the Cowardin Classification System

System	Class	Symbol
Palustrine All non-tidal wetlands dominated by trees, shrubs, 2-5 emergent, mosses, or lichens	Forested Characterized by woody vegetation that is 20 feet or taller.	PFO
	Scrub-Shrub Areas dominated by woody vegetation less than 20 feet tall. Species include true shrubs, young trees (saplings), and trees or shrubs that are small or stunted.	PSS
	Emergent Characterized by erect, rooted, herbaceous hydrophytes present for most of the growing season in most years. Usually dominated by perennial plants.	PEM
	Open Water Unvegetated, open water, typically 6.6 feet or more in depth.	POW

Source: Cowardin et al., 1979.

- Identify any federal- or state-listed endangered, threatened, or candidate aquatic species reported to inhabit water bodies within the study area
- Conduct a reconnaissance-level physical habitat survey of water bodies within the study area that could be affected by project alternatives to describe fish habitats and riparian conditions
- Identify any barriers to fish passage within the streams that intersect the project alternatives in the study area as well as downstream
- Describe potential impacts on aquatic resources that may result from the project alternatives and options
- Describe potential measures to avoid, minimize, or compensate for adverse impacts

2.2.2 Methods

2.2.2.1 Review of Existing Maps and Documentation

Biologists reviewed existing maps and documentation to identify known streams and water bodies in the study area and vicinity (see Section 1.1.2). When applicable, documentation of aquatic species and habitat was analyzed from WRIA, county, and subbasin reports. These streams were then verified and evaluated in the field within the field reconnaissance survey area. Existing GIS data were gathered from the cities of SeaTac, Des Moines, Kent, and Federal Way, and King County. Streams that extend beyond the field reconnaissance survey area and other previously mapped streams outside of the WSDOT or other public rights-of-way were also incorporated into the GIS database.

2.2.2.2 Field Reconnaissance

A detailed field reconnaissance survey was conducted to identify, map, and describe streams and other waters and aquatic habitat within the WSDOT or other public rights-of-way in the study area. Other publicly-owned property that could be accessed was also surveyed. Reconnaissance-level aquatic habitat surveys were conducted 300 feet downstream and 100 feet upstream of each stream crossing and on the entire stretch of any stream paralleling the project alternatives within 200 feet from the edge of the alternative, where access was allowed. These surveys included qualitative characterization of general channel morphology, substrate, bank conditions, slope, and measurements of bankfull width. The ordinary high water mark (OHWM) was also delineated and mapped using GPS. For the Preferred Alternative, the OHWMs of all streams affected by construction were delineated, flagged, and surveyed by a professional survey crew. The width of the riparian area alongside the streams that was included in the field reconnaissance was typically restricted to 50 feet or less and was determined by the edges of roadways and development, as well as by right-of-way access and property boundaries. These surveys were accomplished on all streams, except McSorley Creek where property access was not obtained. McSorley Creek was observed and characterized by what could be seen from the SR 99 right-of-way and culvert, and further details of channel dimensions and locations were obtained from a 2001 Biological Assessment that was produced for the addition of HOV lanes on Pacific Highway (Jones and Stokes, 2001). At the southernmost end of the study area, the upper reach of the West Fork Hylebos Creek is conveyed under I-5 and the S 320th Park-and-Ride south of S 320th Street through a culvert that is considered a fish passage barrier. The entire reach within the study area is piped underground and therefore it was not assessed in the field.

Aquatic habitat conditions and functional status were evaluated based on fish life histories, spawning and rearing habitat requirements, seasonal use, and field observations. Habitat was assessed with the assumption that anadromous fish might one day be able to access the area even if they presently cannot due to man-made barriers. To the extent information is currently available or could be ascertained in the field, downstream fish passage obstructions, including types of impediments to fish passage, were also identified for each stream reach.

Stream classification determinations, in accordance with WAC 222-16-031 and local jurisdictions' critical areas ordinances, were determined from field observations of stream characteristics. Stream type terminology varies between jurisdictions, but all are based on the size of the stream and its ability

to support fish. Under the WAC 222-16-031 interim water typing system, streams are classified as Types 1 through 5, with Type 1 being shorelines of the state, Type 2 having high fish and wildlife use, Type 3 having moderate fish use, and Types 4 and 5 being non-fish-habitat streams that are perennial or intermittent, respectively. All streams in the study area are either Type 3 or Type 5 waters, with the exception of Hylebos Creek which is piped within the study area. Type 3 waters are defined as segments of natural waters that have a moderate to slight fish, wildlife, or human use. If fish use has not been determined, stream segments having a defined channel of 2 feet or greater within the bankfull width and having a gradient of 16 percent or less are presumed to have fish. Type 5 waters are defined as natural waters within the bankfull width of defined channels that are seasonal, non-fish-habitat streams in which surface flow is not present for at least some portion of the year and are not located downstream from any stream reach that is a Type 4 Water.

The City of Kent defines Type 3 streams as "nonsalmonid segments of natural waters not classified as Type 1 or 2 Water. These are stream segments within the bankfull width of defined channels that are perennial and intermittent nonsalmonid habitat streams" (Kent City Code 11.06.670). The City of Des Moines classifies streams based on salmonid and potential salmonid use. Type F streams are defined as "streams that are salmonid-bearing or have the potential to support salmonids" (Des Moines Municipal Code 16.10.160). Type F streams under Federal Way jurisdiction are streams that contain fish habitat. Type Ns streams are seasonal non-fish-habitat streams.

Bingaman Creek is the only stream channel that the Preferred Alternative would impact and was further assessed for the Final EIS. The OHWM was delineated for the entire channel north and south of 288th Street within the Preferred Alternative footprint. The creek downstream of I-5 was qualitatively assessed for general habitat characteristics and connectivity between the study reach and areas downstream in the Green River Valley where there is documented fish use. Property access was obtained for an apartment complex and King County-owned Bingaman Pond Natural Area downstream (east) of I-5. Potential fish passage barriers between the Green River Valley, Bingaman Pond, and the reach within the study area west of I-5 were investigated and qualitatively assessed to determine potential fish use in the affected reach. Habitat and stream channel conditions were assessed throughout the accessible reaches during multiple field visits in September 2015 when the creek channel was dry, and during December 2015 when there was a small amount of flow.

2.3 Upland Vegetation and Wildlife Resources

2.3.1 Study Objectives

The purpose of this investigation was to provide information on the vegetation and wildlife resources in the project study area and evaluate the potential impacts of each project alternative. Specific objectives of this study include the following:

- Identify, map, and describe the existing conditions of the vegetation communities and wildlife habitat resources within 200 feet of each side of the project alternatives

- Determine each alternative's impacts on wildlife, habitat, and vegetation
- Describe potential measures to avoid, minimize, or compensate for adverse impacts

2.3.2 Methods

2.3.2.1 Review of Existing Materials

Biologists reviewed maps, aerial photographs, and documents to determine vegetation communities, wildlife, and wildlife habitat in the study area as well as the greater project vicinity for context (see Section 1.1.2). The potential presence of wildlife species in the study area was determined by the presence of suitable habitat and through existing data sources from literature and online resources such as the WDFW Priority Habitats and Species database (WDFW, 2015), and the tree survey prepared for the Preferred Alternative. Priority species in Washington include all state endangered, threatened, sensitive, and candidate species, as well as federal endangered, threatened, and candidate species and species of concern.

2.3.2.2 Field Investigation

Information on plant species and wildlife habitat was obtained concurrently during the wetland and aquatic resources field reconnaissance surveys. Upland habitat field reconnaissance surveys were conducted within WSDOT and other public rights-of-way along the I-5 and SR 99 corridors. No protocol wildlife surveys were conducted for this report. Field investigation consisted of reconnaissance-level visual observation of vegetation characteristics in the areas within 200 feet of the long-term footprints of the build alternatives. Reconnaissance also occurred on publicly owned property where Sound Transit received right-of-entry. The general types of vegetation cover, such as mixed coniferous forest, and the prevalent species of trees, shrubs, and other vegetation that occur and the size and relative stand age of the vegetation within the surveyed study areas were recorded in the field. Vegetation was not sampled quantitatively.

Upland forest habitat was further characterized to assess its relative value for wildlife habitat in the study areas. Data from the field surveys were used to classify forest habitat using methods adapted from the *Bellevue Urban Wildlife Habitat Functional Assessment Model* (The Watershed Company, 2010). This model is based on a comprehensive literature review of wildlife use of urban habitat and assesses habitat functions at local and landscape levels within an urbanized setting. Sound Transit classified the patches of upland forest habitat within the study areas into four categories—Class A, B, C, or D—representing the functional wildlife habitat value of each patch based on scoring from the assessment model. Scoring was based on factors such as patch size, proximity and connectivity to critical areas, plant species richness, and prevalence of invasive species, with Class A patches providing relatively higher habitat functions and values, and Class D patches providing relatively lower habitat functions and values. A "maintained vegetation" category was also used for upland vegetation communities in the study areas that contain ornamental trees and landscaped vegetation. This community type provides little to no wildlife habitat value and is subject to high levels of human activity.

2.4 Impact Assessment Methods and Assumptions

2.4.1 Impact Assessment Methods

This ecosystems impact assessment describes the projected extent, magnitude, duration, and character of impacts on ecosystems resources for each alternative and option. Impacts were quantified where quantitative data were available (e.g., the area of wetland and upland vegetation impacts).

2.4.1.1 Long-Term Impacts

Potential long-term impacts on wetlands, wetland buffers, streams, associated buffers, and wildlife habitat and vegetation were assessed first by overlaying project alternatives on base maps of existing ecosystem resources. The impact analyses for all alternatives and options assumed the complete loss of each affected resource in the long-term footprint, regardless of the guideway profile (at-grade, trench, or elevated).

Based on factors such as the width and height of elevated guideways, some of the areas identified as impacted may not experience long-term impacts. During the Final EIS preparation, Sound Transit performed a more detailed assessment of long-term impacts for the Preferred Alternative and refined temporary construction limits to distinguish which resources could be restored following construction. This is discussed below under "Construction Impacts."

Potential long-term impacts on wetlands were assessed qualitatively by evaluating project footprint impacts on wetland hydrologic, water quality, and wildlife functions. Converting forested wetlands to scrub-shrub or emergent wetlands within the vegetation clear zone may be considered a long-term loss of forested wetland habitat by regulatory agencies. If a contiguous wetland lies partially within and partially outside the project limits, then best professional judgment was used to determine any long-term project impacts on the portion of the wetland outside the project footprint. If the remaining wetland functions would be substantially degraded by project construction or operation and could not be restored after construction, then it was assumed that all wetland functions would be lost, and the entire wetland acreage was included as a permanent impact. Functional impacts that extend beyond the area of long-term wetland impacts were also qualitatively assessed.

A qualitative assessment of long-term impacts on aquatic species considered such factors as the regional significance of the resident and anadromous fish species, fish habitat value (such as its role as a migration corridor or spawning area), degree of connectivity and loss of habitat following project implementation, overall habitat quality, and the potential for enhancing or restoring aquatic habitat or connectivity. Operational impacts on aquatic species from water quality degradation and loss of habitat were also qualitatively assessed.

Long-term impacts on wildlife and wildlife habitat were assessed qualitatively by considering such factors as the regional significance of the resource, wildlife habitat value (such as its role as a wildlife movement corridor), degree of fragmentation and loss of the habitat following project implementation, overall upland forest habitat quality based on the functional assessment model (The Watershed Company, 2010), and the potential for enhancing or restoring wildlife habitat or connectivity. Long-term operational impacts on wildlife, including disturbances from increases in

human access, noise, and light, and on migratory birds were also assessed. In addition to the long-term operational footprint of the FWLE alternatives, a vegetation clear zone would need to be maintained to keep tree branches off of the guideways. This area would extend up to 11 feet beyond the guideway and would preclude establishing trees within this zone. For the wildlife and wildlife habitat analysis, because forested vegetation cover would not be allowed to regenerate in the vegetation clear zone, it is considered a long-term impact on wildlife habitat.

Long-term impacts on vegetation were determined by evaluating the acreage of each habitat functional category and major vegetation type that would be removed. Impacts were also assessed qualitatively by considering such factors as the regional significance of the resource and the potential for enhancing or restoring unique plant communities. Additionally, the potential for the project to increase or decrease the spread of noxious or invasive plant species was qualitatively analyzed.

Potential long-term impacts on threatened and endangered species (aquatic and terrestrial) include direct mortality, disturbance and displacement effects, and loss or degradation of habitat. Sound Transit prepared a Biological Assessment to serve as the basis for the consultation (Appendix I). The assessment also includes a review of potential effects on essential fish habitat (EFH), as required by the Magnuson-Stevens Fishery Conservation and Management Act.

2.4.1.2 Construction Impacts

Construction impacts would be temporary and limited to the period during and following project construction. The conceptual design assumes most construction would occur within the long-term operational footprint, but some additional areas beyond the long-term operational footprint would also be needed and are identified in a separate construction footprint. For the analysis of wetland and stream buffers, the vegetation clear zone that extends up to 11 feet from the guideway is included in the construction footprint because it would be revegetated with native shrubs and groundcover after construction, and therefore would be restored to functioning buffer. Most impacts to wetlands, streams, and their associated buffers in the construction footprint are considered temporary. The overall construction period would be up to 4 years in a given area, with heavy construction lasting about 6 to 8 months. Estimated areas of construction impacts on ecosystems resources are summarized in Section 4.0.

2.4.1.3 Indirect Impacts

Indirect impacts can be positive or negative. They may be caused by the project, but occur later in time or at a distance, but are reasonably foreseeable. These may include station area development impacts by others, which could change the pattern of land use, population density, or water quality. Indirect impacts may also occur through the implementation of mitigation measures for other environmental impacts, or through supporting projects that are not yet defined or part of the project alternatives. Indirect impacts on ecosystems resources were analyzed qualitatively and are discussed in Section 4.0.

2.4.2 Impact Assessment Assumptions

The impact assessment used the following assumptions regarding impact avoidance, minimization, restoration and compensatory mitigation to inform the anticipated magnitude, duration, and extent of long-term and short-term project impacts.

2.4.2.1 Avoiding and Minimizing Impacts on Sensitive Natural Resources

The FWLE will be designed to conform to all federal, state, and local regulations. Adverse impacts will be avoided or minimized through careful design, rectifying temporary impacts, and compensating for unavoidable adverse impacts. Impact avoidance is discussed in greater detail in Section 5.0, Potential Mitigation Measures. A list of best management practices (BMPs) was developed that identifies measures that could be implemented to avoid or reduce adverse impacts on ecosystems resources during construction and operation. The Final EIS summarizes ESA requirements and/or agreements established during ESA consultation with USFWS and NOAA Fisheries.

2.4.2.2 Site Restoration

For purposes of analysis, affected areas outside of the permanent project footprint that support upland, riparian, or wetland vegetation or other vegetation would be restored to good condition following construction. The length of time required for recovery of ecological functions for different habitats would vary depending upon the intensity of the temporary impact (e.g., vegetation clearing vs. temporary fill), and agency input regarding recovery times for the resources that they regulate. Therefore, the impact is considered temporary.

2.4.2.3 Compensatory Mitigation

Potential mitigation measures were refined during preparation of the Final EIS for the Preferred Alternative. Proposed mitigation measures would include specific goals and objectives and specify monitoring criteria against which potential mitigation measures can be compared, and would consider compensatory opportunities for advance mitigation, mitigation banks, and in-lieu fee programs. Proposed compensatory mitigation measures and location(s) will be developed so that reviewing agencies can determine the likelihood of meeting all stated objectives. Conservation measures will be finalized during permitting.

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3.0 Affected Environment

3.1 Wetlands

The FWLE corridor is on the broad, relatively flat terrace between Puget Sound and the Green River Valley. The plateau includes landforms such as depressions, slope and seep areas, and stream valleys that may support wetlands. Much of this area was developed in the 1960s following construction of I-5 and ongoing development at Seattle-Tacoma International Airport. The current land uses in the project vicinity include a mixture of commercial and office uses (primarily along the major roadways), and single- and multi-family residential. Parks and open-space parcels are distributed across the area. As a result, wetlands now present in the area may represent fragments of larger historic wetland systems or they may be recently formed wetlands that have developed as a result of changes in land use and surface water drainage patterns.

Sound Transit identified a total of 40 wetlands for the Final EIS, which have been organized in the discussion below by their occurrence in the I-5 and SR 99 corridors. Of the 40 wetlands identified in the two study areas, 15 were able to be accessed and delineated during field surveys to collect wetland hydrology, soils, and vegetation data. Detailed wetland determination data forms for the 15 wetlands are provided in Appendix B. Rating forms for all 40 wetlands assessed in the corridors are in Appendix C. Photographs of wetlands accessed during the field reconnaissance survey and from public rights-of-way are included in Appendix D. Appendix E presents maps showing locations of individual wetlands and buffers that would be directly affected by the FWLE.

3.1.1 Wetland Descriptions

3.1.1.1 I-5 Corridor

Twenty-seven wetlands were identified within the I-5 corridor. Wetlands 1-1, 2-1, 2-2, and 12-1 occur in both the I-5 and SR 99 corridors. Of the 27 wetlands, 11 were accessed during the field reconnaissance surveys. The remaining 16 wetlands were on private parcels and were not accessible during the field reconnaissance surveys; they were evaluated using existing documentation and public vantage points. Details for each of these wetlands are provided in Table 3-1, and the locations are shown on Exhibits 3-1 through 3-3. Wetland determination data for wetlands identified during the field reconnaissance survey are in Appendix B.

Sound Transit rated wetlands in the study area using Ecology's 2004 wetland rating system for those wetlands initially identified in the Draft EIS, prior to January 1, 2015. Wetlands identified after January 1, 2015, for the Final EIS, were rated using Ecology's 2014 rating system.

TABLE 3-1
Wetlands in the I-5 Corridor Study Area

Wetland Name	Hydrogeomorphic Classification	Cowardin Classification[a]	Dominant Species	Approximate Wetland Acreage in Study Area (Total Wetland Acreage)	Wetland Rating (Ecology/Local)[b]	Jurisdiction	Buffer Width (feet)	Identified in Field Reconnaissance Surveys[c]
1-1[b]	Slope	PSS	Willows	0.3 (0.3)	IV/III	City of SeaTac	35	No
1-2	Depressional	PFO/POW	Black cottonwood, willows	0.3 (0.6)	III	City of SeaTac	35	No
2-1[d]	Depressional	PEM	Reed canarygrass, cattail	0.4 (0.4)	III	City of SeaTac	35	No
2-2[d]	Depressional	PEM	Reed canarygrass	<0.1 (<0.1)	III	City of SeaTac	35	No
5-1	Depressional	PSS	Willow, salmonberry	0.1 (0.1)	III	City of Des Moines/City of SeaTac	80/35	Yes
12-1[d]	Depressional	PFO/SS	Red alder, black cottonwood, Sitka spruce, willows, dogwood	12.5 (108.1)	II	City of Kent	125	Yes
12-4	Depressional	PFO	Black cottonwood, salmonberry	0.1 (0.6)	III	City of Kent	75	No
20-1	Depressional	PEM/PSS	Alder, willows, reed canarygrass	2.2 (2.5)	IV	City of Kent	50	No
20-2	Depressional	PSS/PEM	Willows, cattail, reed canarygrass	0.6 (0.6)	III	City of Kent	75	No[e]
20-3	Depressional	PSS	Dogwood	<0.1 (<0.1)	III	City of Kent	75	Yes
23-1	Depressional	PFO/PSS	Red alder	<0.1 (1.2)	III	City of Kent	75	No
24-2	Depressional	PFO/PSS	Red alder, salmonberry, slough sedge	0.1 (0.1)	III	City of Kent	75	Yes
25-1	Depressional	PFO	Red alder, salmonberry, sedges	0.6 (4.4)	III	City of Federal Way	60	No

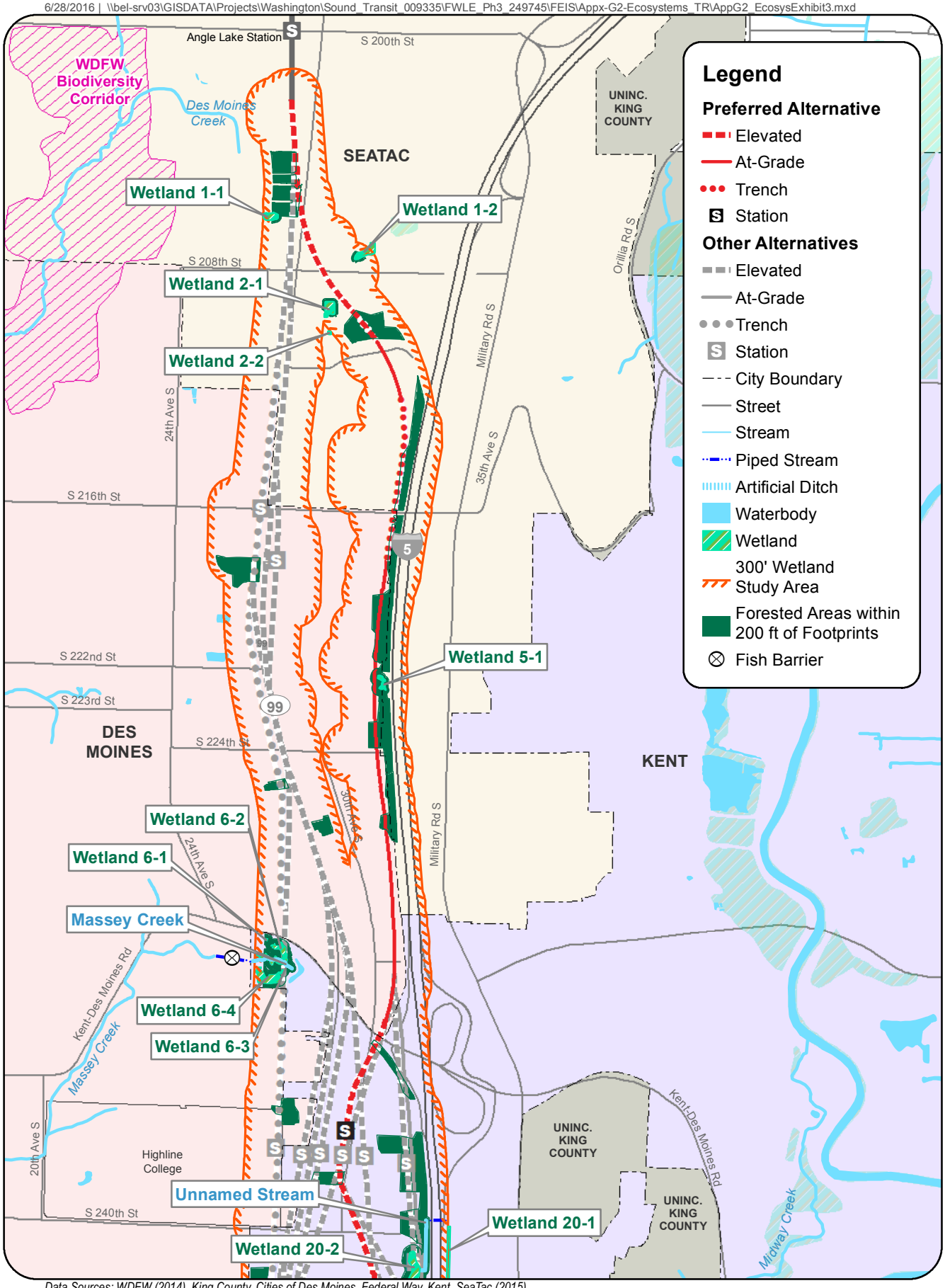
TABLE 3-1
Wetlands in the I-5 Corridor Study Area

Wetland Name	Hydrogeomorphic Classification	Cowardin Classification[a]	Dominant Species	Approximate Wetland Acreage in Study Area (Total Wetland Acreage)	Wetland Rating (Ecology/Local)[b]	Jurisdiction	Buffer Width (feet)	Identified in Field Reconnaissance Surveys[c]
25-2	Depressional	PFO	Red alder, salmonberry, sedges	0.7 (0.7)	III	City of Federal Way	60	No
25-2a	Depressional	PSS	Red alder	0.1 (0.1)	IV	City of Federal Way	40	No
25-4	Depressional	PFO	Red alder, salmonberry, soft rush	<0.1 (4.0)	III	City of Federal Way/ Unincorporated King County	75/75	No
25-5	Depressional	PEM	Reed canarygrass	0.4 (0.4)	IV	City of Federal Way	40	Yes
26-1	Depressional	PEM/PSS	Spirea, Sitka willow, reed canarygrass	0.3 (0.3)	III	City of Federal Way	60	Yes
27-1	Depressional	PFO/PSS	Red alder, black cottonwood, willows, spirea	0.3 (0.3)	III	City of Federal Way	60	Yes
27-2	Depressional	PSS	Salmonberry, slough sedge, reed canarygrass	<0.1 (<0.1)	III	City of Federal Way	60	Yes
27-3	Slope	PEM	Reed canarygrass, soft rush	0.5 (0.5)	IV	City of Federal Way	40	Yes
28-1	Lake fringe	PFO/PSS/PEM /POW	Red alder, willows, dogwood, spirea, reed canarygrass, cattail	0.2 (11.6)	II	Unincorporated King County/ City of Federal Way	125/105	No
28-2	Slope	PSS/PFO	Salmonberry	<0.1 (<0.1)	IV	City of Federal Way	40	Yes
28-3	Depressional	PEM/PSS	Red alder, spirea, reed canarygrass	0.6 (0.6)	III	City of Federal Way	60	Yes
28-4	Depressional	PFO	Black cottonwood, willows	<0.1 (0.1)	III	City of Federal Way	60	No
29-2	Riverine	PEM	Reed canarygrass	<0.1 (<0.1)	III	City of Federal Way	60	No

TABLE 3-1
Wetlands in the I-5 Corridor Study Area

Wetland Name	Hydrogeomorphic Classification	Cowardin Classification[a]	Dominant Species	Approximate Wetland Acreage in Study Area (Total Wetland Acreage)	Wetland Rating (Ecology/Local)[b]	Jurisdiction	Buffer Width (feet)	Identified in Field Reconnaissance Surveys[c]
30-3	Depressional	PFO	Red alder	0.1 (0.1)	III	City of Federal Way	60	No

[a] PEM = palustrine emergent; PFO = palustrine forested; POW = open water; PSS = palustrine scrub-shrub; SS = scrub-shrub (Cowardin et al., 1979)
[b] Dual ratings are presented for wetlands occurring in the city of SeaTac, which uses its own wetland rating system. Wetlands with the same rating under SeaTac and Ecology are reported once.
[c] Wetlands not accessed during surveys were mapped and assessed based on National Wetlands Inventory (NWI), local maps, aerial photos, and GIS data.
[d] Wetlands identified in both I-5 and SR 99 corridors.
[e] Field-verified that Wetland 20-2 does not extend east into WSDOT I-5 right-of-way.

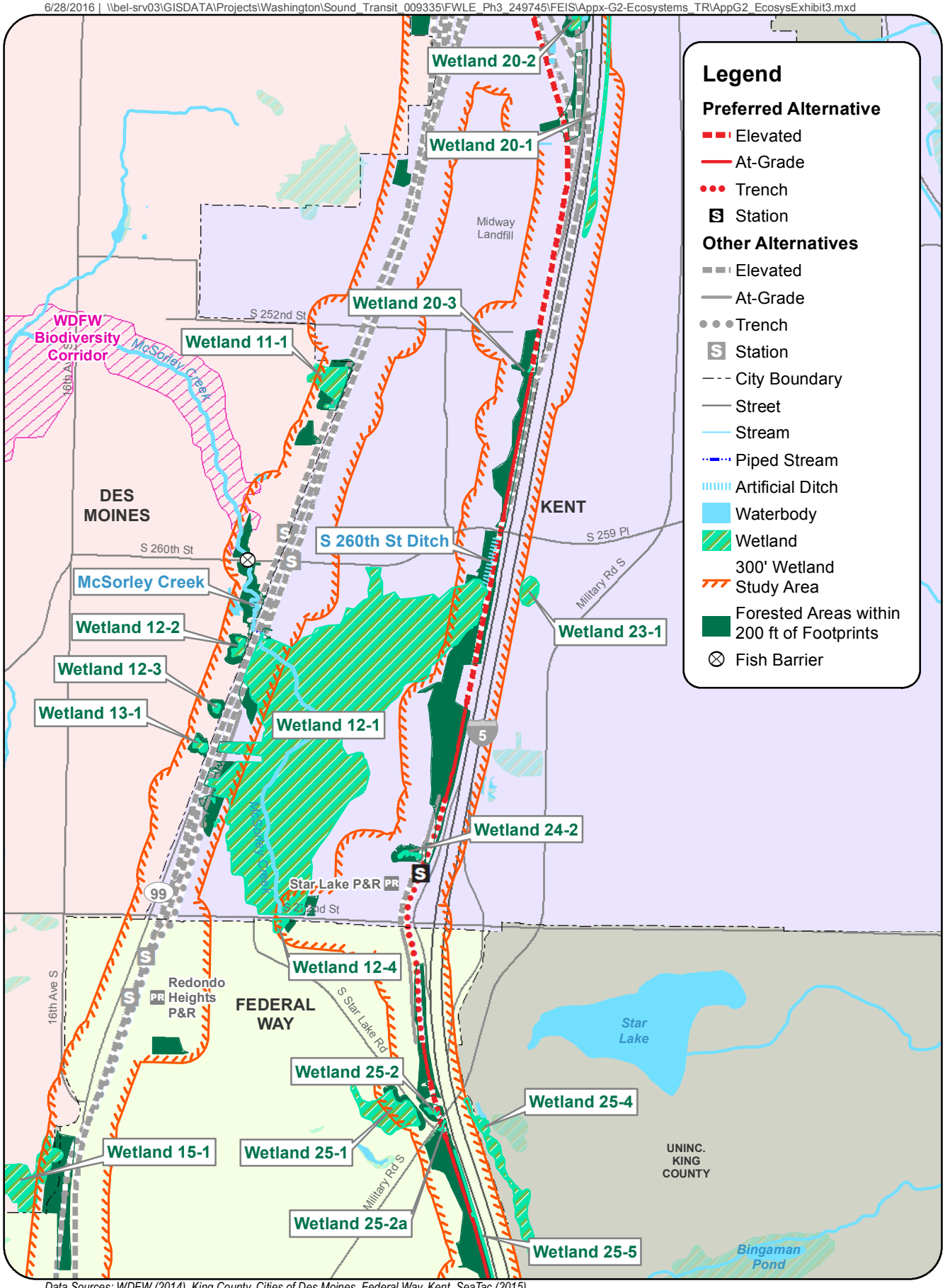


Data Sources: WDFW (2014), King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2015).

N

0 0.25 0.5 Miles

EXHIBIT 3-1
Ecosystems Resources
Angle Lake Station to Kent/Des Moines Station
Federal Way Link Extension

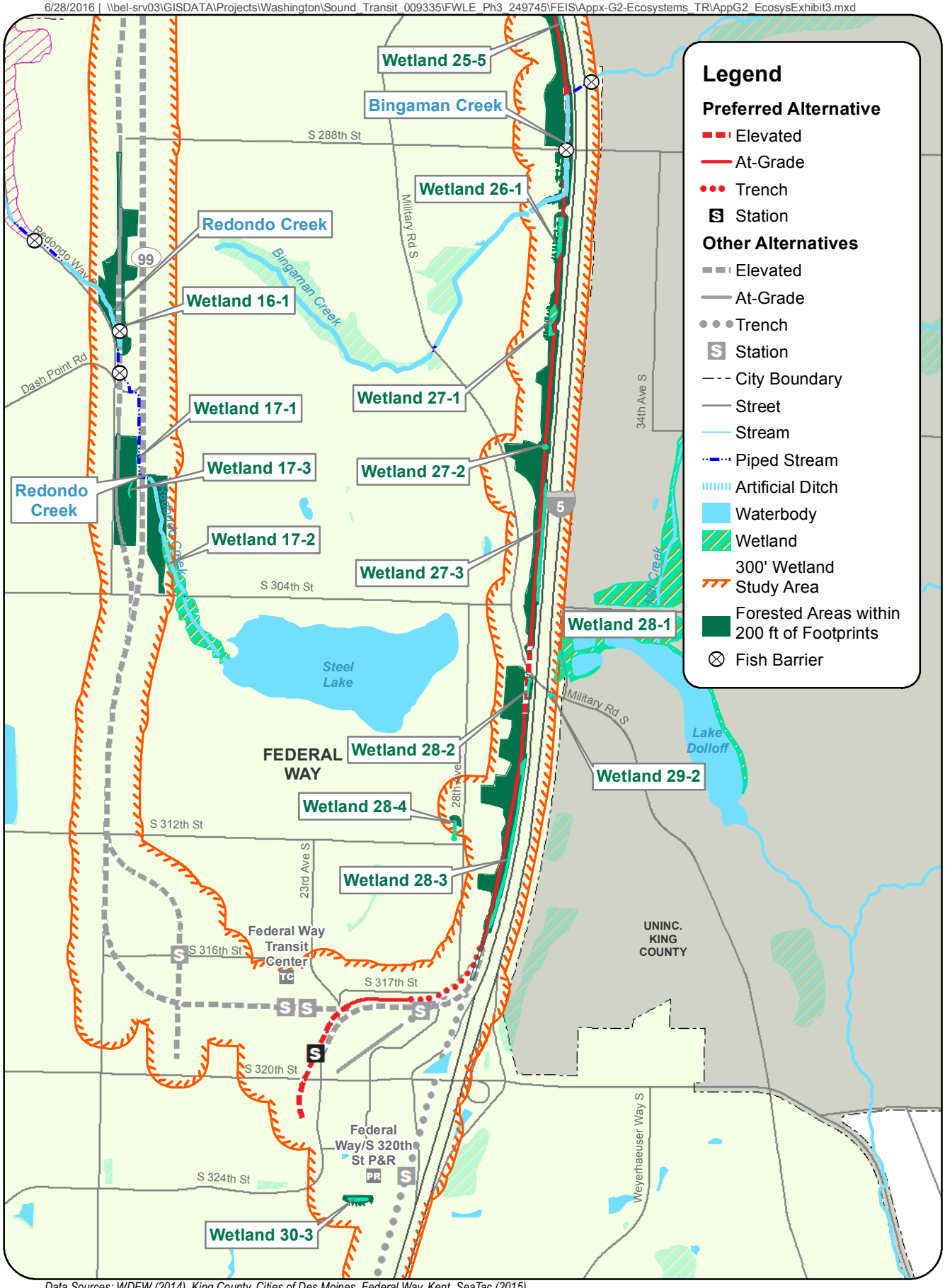


Data Sources: WDFW (2014), King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2015).

N

0 0.25 0.5 Miles

EXHIBIT 3-2
Ecosystems Resources
Kent/Des Moines Station to S 272nd Station
Federal Way Link Extension



Data Sources: WDFW (2014), King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2015).

EXHIBIT 3-3
Ecosystems Resources
S 288th to Federal Way Transit Center Station
Federal Way Link Extension

The identified wetlands vary in size from less than 0.1 acre to more than 108 acres. Wetland 12-1 (McSorley Creek Wetland) is the largest wetland in the I-5 study area. Approximately 4.5 acres of the 108.1 acres of McSorley Creek Wetland fall within the I-5 study area. Other wetlands in the I-5 study area are generally small, isolated features adjoining I-5. Vegetation present in these wetlands varies, but most of the wetlands consist of one vegetation community type. According to ratings assigned to the wetlands using the Ecology rating system, Wetlands 12-1 and 28-1 are Category II wetlands due to their larger size, mature vegetation, habitat structure, and greater connectivity and support to other habitats. Two wetlands fall into the higher function (Category II) group, six wetlands fall into the lower functioning (Category IV) group, and the remaining 19 wetlands provide low to moderate functional scores in between Category II and Category IV, and were rated Category III. The Ecology rating system also categorizes wetlands based on "their sensitivity to disturbance, their significance, their rarity, our ability to replace them, and the functions they provide" (Hruby, 2004, 2014). These wetlands with special characteristics may receive a Category I or II rating independent of the functions the wetlands provide. None of the wetlands met Ecology's criteria for wetlands with special characteristics. All wetland categories are subject to verification with the local jurisdiction and Ecology.

Wetlands 1-1, 1-2, 2-1, and 2-2

Wetlands 1-1, 1-2, 2-1, and 2-2 are in the north portion of the I-5 corridor, near the edge of the study area. These wetlands are less than 0.5 acre to 0.6 acres in size and primarily support emergent plant communities dominated by non-native reed canarygrass (*Phalaris arundinacea*), as well as some scrub-shrub vegetation consisting of willows (*Salix* spp.) and deciduous forest comprised of black cottonwood (*Populus balsamifera*). Wetland 1-1 is a slope wetland with limited potential to provide hydrologic or water quality functions; it also provides low habitat function, and thus is a Category IV wetland under the Ecology rating system and a Category III wetland under the SeaTac rating system. Wetlands 1-2, 2-1, and 2-2 received Category III ratings under both Ecology and SeaTac rating systems, as they are closed depressional wetlands that have moderate potential to provide hydrologic and water quality functions, although they also provide low habitat function. Wetland 1-2 consists of both palustrine open water and forested wetland communities, which is a relatively rare wetland habitat type in a developed corridor.

Wetland 5-1

Wetland 5-1 is a depressional wetland on the west side of I-5 between S 221st Street and S 224th Street. It is approximately 0.8 acre, and vegetation is dominated by willow, salmonberry (*Rubus spectabilis*), and Himalayan blackberry (*Rubus procerus*), with a smaller emergent component. Mowed lawn and an electrical substation are along the western buffer, and the eastern buffer is in the I-5 right-of-way. A dense fringe of Himalayan blackberry is present on the east side of the wetland. Wetland 5-1 scored high for water quality functions; however, it provides limited hydrologic and habitat function due to the small size, lack of habitat features, and absence of connection to other habitats, resulting in a wetland rating of Category III.

Wetland 12-1

The McSorley Creek Wetland (Wetland 12-1) is the largest wetland in the study area at approximately 108.1 acres, and predominantly consists of forest, and shrub communities. Mature red alder (*Alnus*

rubra), Sitka spruce (*Picea sitchensis*), and black cottonwood trees are common in the interior of the wetland. Willows, dense young red alder stands, and redosier dogwood (*Cornus sericea*) were all observed on the margins near adjoining development. The wetland's location at the headwaters of McSorley Creek, potential to store floodwaters, and the presence of multiple habitats and native plant species diversity support higher wetland function, resulting in a Category II rating. Communications with City of Kent staff indicated that past development activities have encroached into the wetland, but areas of older, less disturbed forest are present in the interior, which would result in a higher rating.

Wetland 12-4

Wetland 12-4 is a depressional wetland south of Wetland 12-1 and S 272nd Street. Wetland 12-4 was likely historically connected to Wetland 12-1, as the proximity of the wetlands and the location of S 272nd suggest that this was a single wetland complex that was bisected by the construction of the roadway. This forested wetland is dominated by black cottonwood and redosier dogwood. This wetland was rated Category III for moderate water quality, hydrologic, and habitat functions.

Wetland 20-1

Wetland 20-1 is a depressional wetland on the east side of I-5 across from the Midway Landfill near the edge of the 300-foot study area. Wetland 20-1 is a linear wetland feature of approximately 2.5 acres that drains water from I-5 and discharges to the north into a ravine in the Green River drainage basin. This emergent and scrub-shrub wetland is dominated by red alders, willow, and reed canarygrass. Because of its moderately large size and proximity to I-5, Wetland 20-1 provides moderate water quality function. However, it provides low hydrologic and habitat functions, and thus was rated Category IV.

Wetland 20-2

Wetland 20-2 is west of the I-5 right-of-way and south of S 240th Street. Wetland 20-2 is a depressional wetland approximately 0.6 acre, and supports scrub-shrub and emergent vegetation communities. The north portion of the wetland appears to only be seasonally saturated and is mowed reed canarygrass, whereas the south portion of the wetland appears to be a permanently inundated, excavated area dominated by common cattail (*Typha latifolia*) with a fringe of willows around the perimeter of the inundated area. Wetland 20-2 discharges to an unnamed stream in the I-5 right-of-way (south of Kent-Des Moines Road), which flows north under I-5 (refer to section 3.2.2 for a discussion of this stream). Wetland 20-2 provides moderate water quality function and low hydrologic and habitat function, and thus was rated Category III.

Wetland 20-3

Wetland 20-3 is a small slope wetland south of the Midway Landfill dominated by redosier dogwood. Surface water from this wetland infiltrates to the west; no surface water outlet was observed. Wetland 20-3 is a Category III wetland based on low to moderate water quality and hydrologic function, and low habitat function.

Wetland 23-1

Wetland 23-1 is part of the larger McSorley Creek wetland complex. It is on the east side of I-5 near the edge of the study area. This 1.2-acre depressional, forested/shrub wetland likely was contiguous with Wetland 12-1 prior to the construction of I-5. Wetland 23-1 was rated as a Category III wetland because of its moderately low potential to perform water quality and hydrologic functions and limited potential and opportunity to perform habitat functions.

Wetland 24-2

Wetland 24-2 is a depressional wetland west of the I-5 right-of-way and north of 26th Avenue S. Wetland 24-2 is approximately 0.1 acre, and supports a forested vegetation community with scrub-shrub and emergent understory. This wetland is in a native growth protection easement in the Greenfield Park residential development, platted in 1997. Over half of the wetland appears to be seasonally inundated and is dominated by slough sedge (*Carex obnupta*) and redosier dogwood; the saturated perimeter of the wetland is dominated by salmonberry and red alder. Surface water from Wetland 24-2 discharges through a culvert at the western side. The culvert runs westerly under a private parcel with unknown discharge location. Wetland 24-2 provides moderate water quality and hydrologic function, and low habitat function, and thus was rated Category III.

Wetlands at I-5, Star Lake Road, and Military Road Intersection (25-1, 25-2, 25-2a, 25-4, and 25-5)

Four depressional wetlands (25-1, 25-2, 25-2a, and 25-4) are associated with the intersection of I-5, Star Lake Road, and Military Road (Exhibit 3-2). Three of these wetlands (25-1, 25-2, 25-2a) are on the west side of I-5 and one (25-4) is on the east side of I-5. These wetlands likely represent a former single wetland divided by the construction of Military Road, Star Lake Road, and I-5. The largest wetland (25-4) may drain to an unnamed tributary to Bingaman Pond outside the study area. The wetlands vary in size from 0.1 acre to 4.4 acres. Three wetlands (25-1, 25-2, and 25-4) are dominated by forest habitats. Red alder, salmonberry, soft rush (*Juncus effusus*), and slough sedge were observed in the wetlands. Wetlands 25-1, 25-2a, and 25-4 provide moderate to high functions, and received a Category III rating.

Wetland 25-2 is a closed depression that was likely connected to Wetlands 25-1 and 25-4 prior to the construction of Star Lake and Military Road S. Wetland 25-2 is a WSDOT-owned wetland mitigation site that was last planted in 2002. Surface water currently enters the wetland from a culvert to the southwest that conveys drainage from Wetland 25-2a and surrounding uplands. Surface water flows west and north through Wetland 25-2, and then flows through a 24-inch concrete culvert located under Star Lake Road, discharging into Wetland 25-1. Surface water flow from Wetland 25-2 to Wetland 25-1 is unidirectional, and plan sheets from the Military Road at Star Lake Road Roadway and Traffic Signal Design project (City of Federal Way Department of Public Works, 1998) indicate that there is greater than half a foot difference in elevation between the culvert inlet and outlet. Therefore, Wetland 25-2 and Wetland 25-1 are considered separate wetlands per the guidance in the Ecology rating manuals (Hruby, 2004; 2014). Vegetation consists of a red alder canopy with an understory of salmonberry and sparse cover of slough sedge. This wetland provides moderate function and was rated Category III.

Wetland 25-2a is 0.1 acre and consists of a shallow roadside depression on the south side of Military Road just west of I-5. Wetland 25-2a also is a WSDOT wetland mitigation site that was established in 2003 to compensate for the loss of less than 0.1 acre of wetland from the replacement of a culvert under I-5 at the Military Road South underpass and construction of a new storm drain that discharges to Wetland 25-2 (WSDOT, 2006; 2007). This wetland is dominated by red alder saplings, and was rated as Category IV due to its limited functional capacity. Wetland 25-5 is a depressional, emergent wetland that adjoins the shoulder of I-5 that was rated as a Category IV wetland.

Wetlands 26-1, 27-1, 27-2, and 27-3

Wetlands 26-1, 27-2, and 27-3 are depressional wetlands within the I-5 corridor that are moderately disturbed by development in the I-5 right-of-way. Wetland 26-1 is palustrine scrub-shrub and emergent wetland, Wetland 27-3 is emergent, and Wetland 27-2 is palustrine scrub-shrub wetland. Wetlands 26-1 and 27-2 are Category III wetlands, and Wetland 27-3 is a Category IV wetland.

Wetland 27-1 is a closed depressional wetland approximately 0.3 acre located on the west side of the I-5 right-of-way, adjoining the Camelot Square Mobile Home Park (Exhibit 3-3). This wetland was likely much larger prior to the construction of the mobile home park, as evidenced by fill along the west side of the wetland abutting the I-5 right-of-way boundary. Currently the wetland supports forested and scrub-shrub vegetation communities dominated by red alder, black cottonwood, willows, hardhack spirea (*Spirea douglasii*), and slough sedge. Wetland 27-1 received a high score for water quality since it is a closed depression that treats runoff from the trailer park and I-5. It received low hydrologic and habitat function scores due to its relatively small size, limited habitat structure, isolation in the drainage basin, and lack of connectivity to other habitats. This wetland provides moderate function and was rated Category III.

Lake Dolloff Wetlands (28-1 and 29-2)

Two wetlands are associated with Lake Dolloff (28-1 and 29-2; Exhibit 3-3) on the east side of I-5. These wetlands total approximately 11.6 acres. The largest wetland (28-1) is on the shores of Lake Dolloff and is approximately 11.6 acres. Wetland 28-1 is a lake fringe wetland that includes multiple vegetation classes and has greater diversity of habitat niches. Vegetation present in Wetland 28-1 includes red alder, various willows, redosier dogwood, hardhack spirea, reed canarygrass, and common cattail. Wetland 28-1 provides moderate to high water quality and moderate habitat function; this is reflected in a rating of Category II.

Wetland 29-2 is a shallow swale along the south side of Military Road, and is connected to Wetland 28-1 by a culvert under Military Road. This wetland is dominated by reed canarygrass. It has a single habitat type and more limited function, resulting in lower functional scores and a rating of Category III.

Wetlands 28-2, 28-3, and 28-4

Wetlands 28-2, 28-3, and 28-4 are in the southern portion of the I-5 right-of-way. Wetland 28-2 is a palustrine, scrub-shrub slope Category IV wetland. Wetland 28-3 is a palustrine emergent and scrub-shrub depressional Category III wetland. Wetland 28-4 is a depressional palustrine forested, Category III wetland.

South I-5 Corridor Wetland (30-3)

One depressional wetland (Wetland 30-3) is in the southernmost portion of the I-5 corridor study area (Exhibit 3-3). Wetland 30-3 is approximately 0.1 acre and is a forested wetland dominated by red alder. This small, isolated depression appears to be a remnant of a larger wetland that has been filled in from surrounding development. It received a Category III rating for its moderate water quality score and low hydrologic and habitat function scores.

3.1.1.2 SR 99 Corridor

Seventeen wetlands were identified within the study area of the SR 99 corridor. Of these 17, 6 wetlands were accessed during the field reconnaissance surveys. The remaining 11 are on private parcels and were not accessible during the field reconnaissance surveys; they were evaluated using existing documentation and observations from public vantage points. Details for each of these wetlands are provided in Table 3-2, and their locations are shown on Exhibits 3-1 through 3-3.

The identified wetlands vary in overall size from less than 0.1 acre to more than 108 acres (McSorley Creek Wetland [Wetland 12-1]). Thirteen wetlands are less than one acre in overall size, and the remaining four wetlands range from 2.6 to 108.1 acres. The McSorley Creek Wetland is the largest wetland in the FWLE corridor; it is relatively undisturbed and forms the headwaters of McSorley Creek. Approximately 8 acres of the 108.1 acres of McSorley Creek Wetland fall within the SR 99 study area. Fourteen of the wetlands are located in depressions, and three are associated with slope/seep areas. Wetlands in the study area are primarily deciduous forested wetlands, although the vegetation cover in wetlands immediately adjoining SR 99 is disturbed and dominated by invasive species.

According to ratings assigned to the wetlands using the Ecology rating system (Hruby, 2004 and 2014), wetlands in the SR 99 corridor vary in functional capacity from relatively low functioning to wetlands that provide higher-level functions. Two wetlands (12-1 and 15-1) fall in the higher functioning group (Category II) due to their larger size, diverse vegetation and habitat structure, and greater connectivity to other habitats. Eight wetlands fall into the lower functioning (Category IV) group due to their small size, limited habitat structure, low plant species diversity, and lack of connectivity to other habitats. The remaining seven wetlands provide low to moderate functional scores and were rated Category III. Wetland 1 has a dual rating of Category IV and Category III under the SeaTac and Ecology rating systems, respectively. None of the wetlands in the SR 99 study area received a Category I or II wetlands based on Ecology's criteria for wetlands with special characteristics (Hruby, 2004). Wetlands in the SR 99 corridor are discussed in more detail below.

Wetlands 1-1, 2-1, and 2-2

Wetlands 1-1, 2-1, and 2-2 are in the north portion of the SR 99 corridor, near the edge of the study area. These wetlands are described in Section 3.1.1.1, I-5 Corridor.

TABLE 3-2
Wetlands in the SR 99 Corridor Study Area

Wetland Name	Hydro-geomorphic Classification	Cowardin Classification[a]	Dominant Species	Approximate Wetland Acreage in Study Area (Total Wetland Acreage)	Wetland Rating (Ecology/ Local)[b]	Jurisdiction	Buffer Width (feet)	Accessed During Field Reconnaissance Surveys[c]
1-1[d]	Slope	PSS	Willows	0.3 (0.3)	IV/III	City of SeaTac	35	No
2-1[d]	Depressional	PEM	Reed canarygrass, cattail	0.4 (0.4)	III	City of SeaTac	35	No
2-2[d]	Depressional	PEM	Reed canarygrass	<0.1 (<0.1)	III	City of SeaTac	35	No
6-1	Depressional	PSS	Salmonberry	<0.1 (<0.1)	IV	City of Kent	50	Yes
6-2	Slope	PFO	Red alder, black cottonwood, salmonberry	0.7 (0.7)	IV	City of Kent	50	Yes
6-3	Depressional	PSS	Blackberry, creeping buttercup	<0.1 (<0.1)	IV	City of Kent	50	Yes
6-4	Slope	PFO	Red alder, black cottonwood, salmonberry	0.7 (0.7)	IV	City of Kent	50	Yes
11-1	Depressional	PFO/SS	Red alder, western red cedar, willows, dogwood	2.3 (2.6)	III	City of Des Moines	80	No
12-1[d]	Depressional	PFO/SS	Red alder, black cottonwood, Sitka spruce, willows, dogwood	12.5 (108.1)	II	City of Kent	125	Yes
12-2	Depressional	PFO/SS	Red alder, willows, some soft rush	0.5 (0.5)	III	City of Des Moines	80	Yes
12-3	Depressional	PFO	Red alder	0.2 (0.2)	IV	City of Des Moines	50	No
13-1	Depressional	PFO	Willows	0.4 (0.4)	IV	City of Des Moines	50	No
15-1	Depressional	PFO/PSS/PEM/ PAB	Black cottonwood, red alder, cattail	1.7 (7.3)	II	City of Des Moines/ City of Federal Way	100/75	No

TABLE 3-2
Wetlands in the SR 99 Corridor Study Area

Wetland Name	Hydro-geomorphic Classification	Cowardin Classification[a]	Dominant Species	Approximate Wetland Acreage in Study Area (Total Wetland Acreage)	Wetland Rating (Ecology/ Local)[b]	Jurisdiction	Buffer Width (feet)	Accessed During Field Reconnaissance Surveys[c]
16-1	Depressional	PEM	Reed canarygrass	0.1 (0.1)	IV	City of Federal Way	40	No
17-1	Depressional	PFO	Red alder	<0.1 (<0.1)	III	City of Federal Way	NA	No
17-2	Depressional	PFO	Willow, salmonberry, some red alder saplings	0.8 (4.8)	III	City of Federal Way	60	No
17-3	Depressional	PSS	Red alder saplings	<0.1 (<0.1)	III	City of Federal Way	NA	No

[a] PAB = palustrine aquatic bed; PEM = palustrine emergent; PFO = palustrine forested; PSS = palustrine scrub-shrub; SS = scrub-shrub (Cowardin et al., 1979)
[b] Dual ratings are presented for wetlands in the city of SeaTac, which uses its own wetland rating system. Wetlands with the same rating under SeaTac and Ecology are reported once.
[c] Wetlands not accessed during surveys were mapped and assessed based on NWI, local maps, and aerial photos.
[d] Wetlands identified in both I-5 and SR 99 corridors.
NA = not applicable

Massey Creek Wetlands (Wetlands 6-1, 6-2, 6-3, and 6-4)

Four wetlands in the headwaters of Massey Creek—Wetlands 6-1 through 6-4—are located south of Kent-Des Moines Road and west of SR 99. They are primarily slope wetlands that drain directly into Massey Creek. They primarily consist of deciduous forest communities dominated by red alder and black cottonwood. Salmonberry and slough sedge are common understory plants found in the wetlands. Aggressive invasive species including Himalayan blackberry and English ivy (*Hedera helix*) are codominant in several of these wetlands, particularly in the east portions adjoining a constructed stormwater pond offsite to the east. These wetlands all received Category IV ratings. All four wetlands scored low for hydrology and water quality functions since they are slope wetlands or are small (less than 0.1 acre); however, because these wetlands occur in the headwaters of Massey Creek, they provide additional hydrologic support by reducing the effects of peak flood flows that enter Massey Creek. The wetlands scored low for habitat functions due to limited diversity in structure and isolation from other habitats.

Wetland 11-1

Wetland 11-1 is a depressional wetland that adjoins the west side of SR 99 (Exhibit 3-2). It is a forested and scrub-shrub wetland dominated by red alder and western red cedar (*Thuja plicata*) trees with an understory of willows and redosier dogwood. Wetland 11-1 provides moderate water quality functions because incidental surface runoff from SR 99 flows to the wetland, providing opportunity for the wetland to perform this function. Wetland 11-1 has moderate potential for hydrologic and habitat functions; however, it lacks opportunity to provide these functions as it is a relatively isolated wetland, and thus received a Category III rating.

McSorley Creek Wetlands (Wetlands 12-1, 12-2, 12-3, and 13-1)

The McSorley Creek wetlands are primarily in Kent, with a small portion in Des Moines. The complex consists of four depressional wetlands in the SR 99 corridor (12-1, 12-2, 12-3, and 13-1). Wetland 12-1 is also in the I-5 corridor and is discussed in Section 3.1.1.1. The McSorley Creek wetland complex totals approximately 110 acres and is the largest group of wetlands in the SR 99 corridor study area (Exhibit 3-2). The contributing basin for the McSorley Creek wetlands extends east of I-5 and west to just beyond SR 99, and forms the headwaters of McSorley Creek. The proximity of the wetlands to each other and the intervening roadways suggests that these wetlands likely represent a single wetland complex that was divided by construction of I-5 and SR 99, and further encroached upon by the surrounding development.

Three other depressional wetlands (12-2, 12-3, and 13-1) are smaller wetlands (no more than 0.5 acre) that have been cut off from Wetland 12-1 by development. Based on direct field observations of Wetland 12-2, observations from SR 99 right-of-way, and available stormwater utility GIS data, there do not appear to be any culverts under SR 99 that would allow bidirectional flow between Wetlands 12-1, 12-2, 12-3, and 13-1. Because of their smaller size and isolation from other habitat, their potential to perform wetland functions and opportunity is generally limited, and thus they are rated as Categories III and IV wetlands.

Wetland 15-1

Wetland 15-1 is a large (7.3-acre) depressional wetland west of SR 99, near the edge of the 300-foot study area. Wetland 15-1 is a headwater wetland in the Redondo Creek drainage basin. It is a structurally diverse wetland comprised of aquatic bed, emergent, scrub-shrub, and forested vegetation communities. Dominant vegetation includes black cottonwood, red alder, and common cattail. According to the King County (1991) Wetlands Inventory, a portion of the wetland was a peat bog dredged by the property owner. Wetland 15-1 receives a Category II rating as it has high potential for all three wetland functions. Wetland 15-1 is surrounded by residential development and thus has opportunity to provide water quality functions. It also adjoins Wooten Park, a relatively undisturbed block of forest, which provides opportunity for habitat functions.

Wetland 16-1

Wetland 16-1 is a small (0.1-acre) excavated depression that discharges to Redondo Creek in a utility corridor located west of SR 99. It appears to receive stormwater from an apartment building complex upslope and to the east. It is a sparsely vegetated emergent wetland dominated by reed canarygrass. Wetland 16-1 received a Category IV rating due to its small size in relation to the contributing watershed and very limited structural potential to provide habitat functions.

Steel Lake/Redondo Creek Wetlands (17-1, 17-2, and 17-3)

The second largest group of wetlands in the SR 99 corridor is associated with a tributary of Steel Lake. This group consists of three wetlands (17-1, 17-2, and 17-3) located in Federal Way. The three wetlands total approximately 5 acres (Exhibit 3-3). Wetlands 17-1, 17-2, and 17-3 are associated with Redondo Creek, a small stream that drains from Star Lake. Based on 2013 and 2014 field observations, the reach of Redondo Creek near these wetlands has seasonal flow. These three wetlands likely represent the remnants of a single wetland system divided by the construction of SR 99.

The largest wetland (17-2) is 4.8 acres and is in the shallow valley of Redondo Creek east of SR 99, extending south to the edge of Steel Lake outside of the SR 99 study area. Vegetation in this wetland is dominated by shrub habitat (predominantly willow, salmonberry, and red alder saplings). Wetland 17-2 is a relatively large wetland in its watershed, supports water quality and hydrologic function in Redondo Creek, and has relatively intact buffers to the east, resulting in a Category III rating. Wetlands 17-1 and 17-3 are smaller wetlands (0.1 acre or less) immediately to the west of SR 99, where the road prism has formed shallow depressions in the slope. These fragmented wetlands do have natural buffers to the south, but provide somewhat lower function due to their small size, limited potential to store floodwater and improve water quality, and limited structural diversity and habitat features. They were rated Category III.

3.1.2 Jurisdictional Determination

During the permitting phase of this project, Sound Transit may request jurisdictional determinations by the USACE for those wetlands and non-wetland waterbodies that are likely to be affected by the project the Sound Transit Board selects to build.

3.2 Aquatic Species and Habitat

3.2.1 Drainage Basin

The FWLE corridor is primarily in WRIA 9 (Duwamish – Green River Basin), with a small portion of the southern extent of the study area in WRIA 10 (Puyallup-White). The portion within WRIA 10 is south of Steel Lake in Federal Way and has no surface water streams that intersect the study area. The FWLE corridor is situated between two major drainages, the Green River to the east and Puget Sound to the west. These water bodies contain Pacific Northwest salmonid species including stocks that are listed under the ESA. The I-5 and SR 99 corridors (up to 300 feet from the project footprint) contain headwater streams that drain to the Green River and Puget Sound; stream flows from the project study area travel at least 1/2 mile before discharging to these major water bodies. Drainage sub-basins that the FWLE could pass through are Des Moines Creek, Lower Green River West, Massey Creek, McSorley Creek, Woodmont Creek, Bingaman Creek, Redondo Creek Cold Creek, and Hylebos Creek.

3.2.2 Streams in the Study Area

This section describes the streams that are present in the study area and provides information about fish use, fish habitat quality, and riparian habitat conditions in these streams. Table 3-3 summarizes the streams in the study area and their jurisdictional classifications. Stream classifications according to WAC 222-16-031 are also provided and are based on definitions for the physical characteristics of the streams where fish use has not been determined. The locations of the streams in the study area are shown on Exhibits 3-1 through 3-3. Appendix D includes photographs of the streams, and Appendix E includes detailed maps of streams in relation to the FWLE alternatives. The streams in the study area are described from north to south, and by the project corridor that they intersect.

Five named creeks and one unnamed stream intersect the FWLE alternatives. There is also a small drainage ditch south of S 260th Street along an old gravel road bed to the west of the I-5 embankment (Exhibit 3-2). This is an artificial drainage channel lined with rip rap and spall that conveys water for approximately 600 feet from a 2-foot-diameter concrete culvert under S 260th Street to where it dissipates in the northern portion of the McSorley Creek Wetland area. The channel is straight with a fairly uniform width of 2 to 3 feet along its length. The ditch is unlikely to be regulated by the USACE because it has intermittent flow, is not a relocated tributary, is not excavated in a tributary, and does not drain wetlands (33 Code of Federal Regulations [CFR] Part 328). This channel does not provide suitable habitat for fish, nor is it connected to any fish-habitable waters and will not be further discussed in this report.

Bingaman Creek is located along the I-5 corridor and flows eastward into the Green River watershed. Massey Creek, McSorley Creek, and Redondo Creek flow through the SR 99 corridor and westward to Puget Sound. The upper reach of Hylebos Creek is conveyed underground through culverts that span the southern end of the I-5 corridor study area, and does not provide any usable fish habitat and consequently was not assessed in the field. No other surface water bodies are known to occur or were observed in either corridor during the field visits. There are mapped drainages along the I-5 corridor

that convey stormwater underground along Military Road S and are therefore not fish habitat and do not support fish passage.

Streams in the study area were assigned classifications based on the systems used by the cities of Kent, Des Moines, and Federal Way as described in Section 2.2.2. Each city classifies and assigns protective buffers to streams based on the presence of fish and whether water flow is perennial or seasonal. No buffer is applicable to the reach of Hylebos Creek in the study area as it is conveyed through a pipe (Federal Way Revised Code 19.145.270). Table 3-3 lists the streams and associated buffers in the study area.

There is limited biological information available on the small creeks that intersect the study area (described below by corridor). In general, these are low-gradient streams typical of Puget Sound lowland drainages that receive their flow from springs, seeps, lake outlets, rainfall, and groundwater runoff. Habitat degradation associated with industrial development and/or urbanization has occurred in all of these creeks, and much of the area is currently covered with impervious surfaces (Kerwin and Nelson, 2000).

TABLE 3-3
Streams and Associated Buffers in the Federal Way Link Extension Study Area

Stream Name	Project Corridor	Stream Type in Study Area[a]	Jurisdiction	Local Jurisdiction Stream Buffer Width (feet)	Stream Type based on WAC 222-16-031[b]	Documented Salmonid Presence in Study Area
Bingaman Creek (north of S 288th Street)	I-5	F	Federal Way	100	3	No
Bingaman Creek (south of S 288th Street)	I-5	F	Federal Way	100	3	No
Unnamed stream in I-5 Right-of-Way (north of S 240th St)[c]	I-5	3	Kent	40	5	No
Massey Creek	SR 99	3	Kent	40	3	No
McSorley Creek (west of SR 99)	SR 99	F	Des Moines	115	3	No
McSorley Creek (east of SR 99)	SR 99	3	Kent	40	3	No
Redondo Creek (downstream of Dash Point Road)	SR 99	F	Federal Way	100	3	No
Redondo Creek (east side of SR 99)	SR 99	F	Federal Way	100	3	No

Note: Hylebos Creek is not included because it is piped in the project area.

[a] Stream type terminology varies between jurisdictions, but all are based on the size of the stream and its ability to support fish. In Kent, Type 3 streams are segments of natural waters within bankfull width of defined channels that are perennial or intermittent streams within the portion of the channel where there is no documented salmonid use. In Des Moines, Type F streams are those that are salmonid bearing or (as is the case here) have the potential to support salmonids. Type F streams under Federal Way jurisdiction are streams that contain fish habitat.

[b] Under the WAC 222-16-031 interim water typing system, Type 3 waters are defined as segments of natural waters that have a moderate to slight fish, wildlife, or human use. If fish use has not been determined, stream segments having a defined channel of 2 feet or greater within the bankfull width and having a gradient of 16 percent or less are presumed to have fish. Type 5 waters are defined as natural waters within the bankfull width of defined channels that are seasonal, non-fish-habitat streams in which surface flow is not present for at least some portion of the year and are not located downstream from any stream reach that is a Type 4 Water.

[c] The City of Kent does not regulate activities in artificial drainages intentionally created from nonwetland sites, including, but not limited to, grass-lined swales, irrigation and drainage ditches, retention or detention facilities, and landscape features (Kent City Code 11.06.040).

Riparian plant species present in the study area include red alder, bigleaf maple (*Acer macrophyllum*), and Douglas-fir (*Pseudotsuga menziesii*), with madrone (*Arbutus menziesii*), spruce (*Picea* spp.), and western red cedar present in smaller quantities. Shrub species present typically include Indian plum (*Oemleria cerasiformis*) and Himalayan blackberry. The limited quantity of riparian area and the lack of large trees can effectively limit the supply of organic matter and terrestrial insects delivered to the stream system (Kerwin and Nelson, 2000). The short- and long-term potential for large woody debris (LWD) recruitment in these small stream drainages is poor because land use activities effectively preclude the maturation of riparian stands. With the exception of McSorley Creek, the riparian habitat in the study area is generally limited and confined to relatively narrow corridors by urban development.

Roadways and development in the area have resulted in all of the streams being conveyed through culverts and pipes for at least some portion of their length. This alters flow patterns and natural stream processes, and can pose passage barriers for fish. Impaired passage to larger, more productive streams due to extensive culverts and stormwater connections is another major limiting factor affecting these small streams' capacity to support fish populations in the vicinity. All of the streams present in the study area have fish passage barriers located at some point downstream of the project corridor. These barriers are listed in Table 3-4 and described in the following sections for each stream.

TABLE 3-4
Fish Passage Barriers in the Study Area

Stream	Structure	Barrier	Location
Massey Creek	Vertical drain and piped section	Complete	East of 25th Ave S
McSorley Creek	Culvert	Complete	S 260th Street crossing
McSorley Creek	Culvert	Partial	SR 99
Bingaman Creek	Culvert	Complete	I-5 north of S 288th Street
Bingaman Creek	Syphon culvert	Complete	S 288th Street crossing
Redondo Creek	Piped section	Complete	Under SR 99 by Dash Point Rd
Redondo Creek	Culvert	Complete	Utility corridor off Redondo Way S
Redondo Creek	Vertical drain and piped section	Complete	Under Redondo Way S
Hylebos Creek	Culvert and piped	Complete	Under park-and-ride south of S 320th Street

The northern extent of the project vicinity is within the Des Moines Creek drainage basin. North of S 204th Street, an unnamed tributary to Des Moines Creek is mapped to the west, outside of the study area. No surface water channels are present within this portion of the project study area north of Kent-Des Moines Road.

I-5 Corridor

Bingaman Creek

Bingaman Creek flows roughly northeast from wetlands west of Military Road and south of S 288th Street, then bends north along I-5, then passes under I-5 and continues east to Bingaman Pond (Exhibits 3-2 and 3-3, and Appendix E: Sheet 10). Downstream of Bingaman Pond, the creek continues

down into the Green River Valley where it flows under S 277th Street and flows north to enter the Green River north of Kent-Des Moines Road (SR 516).

The reach of the creek within the project study area is upstream of several fish passage barriers and therefore does not currently provide useable stream habitat for fish. It enters the I-5 right-of-way from a mobile home park approximately 500 feet south of S 288th Street, and then runs north along the western edge of the right-of-way, parallel to I-5. It crosses under S 288th Street in an inverted siphon culvert that conveys water under the roadway at a lower elevation than the bed of the stream channel north and south of the culvert. It then continues north along the right-of-way for approximately 540 feet, where it enters a culvert under I-5. Both culverts are considered barriers to fish passage by WSDOT (2016). Culverts in reaches downstream of I-5 are also in poor condition and pose at least partial barriers to fish passage.

Upstream of S 288th

Habitat quality in the stream reach on the south side (upstream) of S 288th Street is much more degraded than the reach on the north side due to the eroding banks, silt and mud substrate, the proximity of a residential mobile home park and frequent human disturbance, and the presence of accumulated trash in the stream channel. The channel banks in the area between the mobile home park and the sound wall are eroding. The west bank is vegetated and 10 to 15 feet high, while the east bank is much lower and slopes up to the base of the WSDOT concrete sound wall. The stream channel is approximately 15 feet wide at its downstream end near a trash rack and siphon culvert entrance, and narrows upstream to 8 to 10 feet wide at bankfull. The substrate of the channel in this reach is silt and sand with organic debris, and the stream flow is very slow with a 1 percent slope or less. The stream flows through the 10-foot-wide trash rack before crossing under S 288th Street via the siphon culvert. This culvert is considered a barrier to fish passage by WSDOT and WDFW. During a field visit in December 2015, when flows were relatively high, the trash rack at the culvert entrance was partially clogged with woody debris and trash, causing backwatering in the creek channel upstream.

Between S 288th and I-5

On the north side of S 288th Street, Bingaman Creek flows north alongside the I-5 road embankment. The channel substrate is gravel and cobble. The banks are approximately 18 inches high to the OHWM, are steep and vegetated, and have some low scour. The channel was almost dry during an initial visit in January 2014, and was completely dry during a subsequent visit in September 2015. In December 2015 after a prolonged period of rain, the creek in this reach had relatively high flows to around the OHWM level and depths of 8 to 18 inches or more, and in March 2015 the water depth was 4 to 5 inches. The channel is fairly straight and uniform, and ranges from 7 to 9 feet wide at the OHWM. The stream gradient is low at around 1 percent with some small riffle areas approximately half way along the reach where the slope changes to approximately 2 percent. Approximately 540 feet north of S 288th Street, the creek flows east through a 3-foot-diameter concrete culvert under I-5. Based on survey data of the entrance and exit structures, the culvert under I-5 has a slope of approximately 6 percent and poses a complete barrier to fish passage.

Riparian habitat along this reach consists of mature coniferous forest with some shrub understory, and the forested corridor perpendicular to the stream is roughly 300 feet wide, covering the property between 30th Avenue S and I-5. This vegetation provides cover and shade to the stream channel, as well as LWD input. The natural gravel stream bed, vegetated banks, and mature riparian cover provide good fish habitat in this reach. The channel is fairly uniform and seems to have been artificially straightened to run alongside the base of the I-5 road prism.

Downstream of I-5

The channel downstream of the I-5 culvert passes through a wooded area on property occupied by an apartment complex. A culvert under a private drive in the apartment complex is in poor condition and poses a partial barrier to fish passage. The channel in this reach is 4 to 8 feet wide with gravel and some cobble in the substrate and was completely dry at the time of the field visit in September 2015. The channel widens as it progresses downstream to the Bingaman Pond Natural Area, a conservation area owned and managed by King County. Scour and bank erosion in this reach indicate that fast flows pass through this section of the creek channel during high flow periods. Stormwater inputs add to the flow downstream of the apartment driveway and parking area.

The connection of Bingaman Creek to Bingaman Pond on the upstream (west) side of the pond is tenuous with respect to fish passage, with no defined channel and heavy vegetation in a large wetland. The channel dissipates into small braids in the forested area to the west of the pond that may provide some passage during periods of high flow. During a subsequent field visit in December 2015, flow was observed in the channel throughout its length and several small branches of the creek were observed flowing through shallow channels in the forested area west of the Bingaman Pond wetland. Although heavily vegetated, no definitive obstructions were observed between the water pooled in the wetland and the braided channels of this reach of Bingaman Creek.

Although habitat features in the creek create the potential for fish to occur, lack of fish-passable connectivity to perennial and fish-inhabited reaches in the watershed currently preclude the use of the reach in the project area at the west side of I-5 by fish. WDFW PHS data (accessed in 2015) show cutthroat trout (*Oncorhynchus clarki*) presence in Bingaman Creek, including the project area. WDFW Salmonscape and Kerwin and Nelson (2000) report Bingaman Creek as having the potential to support coho salmon (*Oncorhynchus kisutch*) if barriers downstream of Bingaman Pond were not present. Because Bingaman Creek goes completely dry during summer and downstream connectivity to wet areas (i.e., Bingaman Pond) is lacking, fish that may inhabit the pond do not return to the creek channel upstream during periods of flow. In addition to the culvert under I-5, sections of steep gradients and cascades at the east side of I-5 create natural barriers to small and juvenile fish and prevent them from moving upstream into the reach in the project area. Therefore, although cutthroat trout and other resident species, such as sculpin, likely inhabit areas of Bingaman Creek downstream, they are not likely to be present in the reach within the project footprint. Fish including coho and steelhead (*Oncorhynchus mykiss*) are documented to inhabit the reach of Bingaman Creek downstream of 55th Avenue to where it connects with the Green River in the valley (WDFW, 2016).

Unnamed Stream in I-5 Right-of-Way (South of Kent-Des Moines Road)

There is a small stream channel that originates in Wetland 20-2 on the west side of I-5 just south of the Kent-Des Moines Road southbound on-ramp (Exhibit 3-1 and Appendix E: Sheet 3). This small channel flows north alongside I-5 for approximately 600 feet, then through a 24-inch-diameter metal culvert that conveys it east under I-5.

The channel is low-gradient at less than 1 percent, and flow is very slow. There is a small area near the culvert entrance where the gradient slightly increases and the streambed is composed of small gravel, but the rest of the channel bed is composed of a thick layer of silt and organic material. This reach is slow moving, and some aquatic vegetation is also present throughout the channel. The channel is 5 to 7 feet wide at the OHWM and there was 3 to 8 inches of water in the channel during a March 2014 field visit. The banks are 6 to 14 inches high and are engineered on the east side from the highway embankment materials and where recently cleared of vegetation. This channel has been at least partially excavated and routed to make a 90 degree turn to follow the edge of the I-5 road prism. Two small pipes convey water under a small berm that crosses the channel approximately 75 feet south of the culvert, which impede flow. This channel does not provide suitable habitat for salmonids and other fish and is isolated from streams that are known to contain fish.

Hylebos Creek

The upper reach of the west fork of Hylebos Creek is conveyed under I-5 and the S 320th Park-and-Ride south of S 320th Street through a culvert that is considered a fish passage barrier. The entire reach within the study area and further east under The Commons Mall parking lot is piped underground and therefore does not provide any usable fish habitat. The creek also flows through ditches and multiple culverts and piped sections through developments downstream. Salmon are documented in Hylebos Creek, including coho, Chinook, and steelhead, but in stream reaches over 2.5 miles downstream.

SR 99 Corridor

Massey Creek

On the west side of the intersection of SR 99 and Kent-Des Moines Road is a stormwater retention pond that collects runoff from the surrounding roadways and business plaza and is the headwater for Massey Creek (Exhibit 3-1). This small creek flows west from the stormwater pond through a forested depressional area for approximately 500 feet. The creek originates from an 18-inch-diameter pipe culvert near the base of the stormwater pond embankment. At the western end of the reach, the creek flows into a vertical drain structure and into a pipe that conveys it westward under an apartment complex and road. This culvert and drain constitutes a complete passage barrier and isolates the reach within the study area from the rest of Massey Creek downstream.

The creek flows over several small cascades comprised of spall from the base of the stormwater pond. The creek then levels out to a low gradient of 1 percent or less as it spreads out into several slow-flowing branches within the wetland. The creek channel in the study area is very shallow and poorly defined with some standing water and side channels through the wetland. Wetted depths at the time of the March 2014 field visits after days of substantial rain ranged from 2 to 4 inches. The eastern half of the reach within the project footprint consists of several braided channels within the wetland,

interconnecting multiple areas of shallow standing water. The riparian areas are comprised of a small, forested wetland area with red alder, black cottonwood, and salmonberry. There were a few pieces of LWD within the braided reach in the wetland, but the low flow and shallow water do not allow for the creation of scour pools or cover from this structure. The western half of the reach consists of a single channel approximately 4 feet wide, which was also shallow with low, poorly defined banks. The stream bed consists of sand and organic material. Fish habitat in this reach is poor and the creek would not support salmonids.

McSorley Creek

The south fork of McSorley Creek flows northwest from its headwaters in a large wetland area (Wetland 12-1) east of SR 99 (Exhibit 3-2). The stream channel through this wetland is approximately 7 feet wide with bank heights around 2 feet. The channel meanders at a low gradient of 1 percent with water depths of a few inches to a foot. The substrate in the wetland portion is silt and fines. At SR 99, the channel turns north to follow the toe of the road embankment. At this point, the channel is straightened and narrows to 4 feet at OHWM and approximately 2 to 3 feet deep at bankfull. The flows increase slightly in this narrower section and the substrate changes to gravel and some cobble. The creek parallels the roadway for approximately 125 feet before making a sharp bend to enter a 4-foot-wide concrete box culvert that conveys the stream under SR 99. This culvert is listed as a partial barrier to fish passage (WDFW, 2016).

The stream channel within the wetland contains good conditions for fish habitat, with a large riparian area of mixed forest. The riparian buffer vegetation in the overstory averages 20 to 30 feet in height and is dominated by Sitka spruce and black cottonwood, as well as dense stands of young red alder saplings. The shrub layer is dominated by hardhack spirea and sapling Oregon ash (*Fraxinus latifolia*), with common horsetail (*Equisetum arvense*) and creeping buttercup (*Ranunculus repens*) in the herbaceous layer.

On the west side of SR 99 the creek emerges from the culvert into a 20- to 25-foot-wide engineered drainage swale that flows north between a hotel parking lot and SR 99 at a 1 percent gradient. The swale is predominantly vegetated by reed canarygrass and Himalayan blackberry and is bounded to the east and west by paved areas. The stream channel in this reach averages 5 feet in width at the OHWM and has a gravel and cobble substrate (Jones and Stokes, 2001). Flows in this reach were less than a foot deep at the time of the field visit in April 2014 and the water passes over a series of shallow steps of cobble and vegetation debris at a 2 to 3 percent gradient. This segment travels parallel to the highway for approximately 110 feet before passing through an approximately 5-foot-diameter pipe culvert under a gravel drive (Exhibit 3-2 and Appendix E: Sheet 19). Fish habitat conditions in this short reach are poor due to the abundance of vegetation within the channel and the proximity to anthropogenic factors such as impervious surfaces and debris from the roadside and parking lot.

The creek continues north from the exit of the culvert and meanders through a small, forested ravine area between the gravel drive and S 260th Street. A small pool is located at the outflow of the culvert that is likely the result of scouring at high flows. An additional channel enters this drainage near the culvert from the east, carrying stormwater flows from SR 99 and headcutting back into the east slope

above the south fork of McSorley Creek. North of the scoured pool, McSorley Creek continues northwest with an OHWM width of approximately 7 to 8 feet, and channel substrate consisting of gravels, cobbles, and sands with a 2 percent gradient. The channel is located at the bottom of a wooded ravine, approximately 30 feet below the elevation of SR 99 and S 260th Street. Stream habitat in this reach consists of some riffle areas and slower-flowing runs, with water depths less than one foot in most areas during the time of the field visit.

Riparian vegetation is dominated by red alder, salmonberry, and buttercup. Upland buffer vegetation in the canopy is a mix of mature red alder and bigleaf maple and, in the understory, trailing blackberry (*Rubus ursinus*), Himalayan blackberry, and sword fern (*Polystichum munitum*) (Jones and Stokes, 2001). The mature tree canopy provides shade and LWD recruitment to the stream channel in this reach. However, the proximity of urban development and roadways detracts from the habitat quality of this reach, and trash and human disturbance was evident throughout most of the small ravine.

At S 260th Street, the creek is conveyed through another pipe culvert near the base of the high roadway embankment. The culvert exit on the north side of S 260th Street is hanging approximately 2 feet above the stream bed and is listed as a complete passage barrier to fish (WDFW, 2016). Beyond this, the south fork of McSorley Creek continues westward through forested areas and merges with the north fork to become McSorley Creek, which continues through Saltwater State Park, where it enters Puget Sound. McSorley Creek's riparian corridor is mostly intact and the corridor is the least urbanized of the four streams in the study area. Cutthroat trout and coho salmon are documented to occur in McSorley Creek from the mouth at Puget Sound upstream to at least 16th Avenue S (WDFW, 2015 and 2016). The reach of the south fork of McSorley Creek in the study area is mapped as non-fish-bearing (WDNR, 2014b). However, observations during field visits indicate that although this reach of McSorley Creek is isolated to fish downstream by passage barriers, the reach contains habitat that could support fish.

Redondo Creek

Redondo Creek originates at Steel Lake and passes under S 304th Street and through Wetland 17-2 on the east side of SR 99 (Exhibit 3-3). The stream flows into a 2-foot-diameter pipe culvert at the base of the retaining wall on the east side of SR 99, where it is then conveyed in the stormwater system under SR 99. The stream channel through this wetland and forested area appears to be intermittent since during the field visit in January 2014, surface water dissipated into the ground in roughly the middle of this reach and the culvert entrance under the retaining wall was dry. The presence of a defined channel and vegetation debris deposited by flowing water on the surrounding vegetation and culvert entrance indicates that surface water flows through this channel during wetter months and provides a continuous connection between the outlet of Steel Lake and the culvert system under SR 99. Steel Lake contains largemouth bass (*Micropterus salmoides*) and yellow perch (*Perca flavescens*), and is stocked each spring with rainbow trout (*Oncorhynchus mykiss*) (WDFW, 2013). Due to this intermittent connection with Redondo Creek, it is therefore possible that some of the fish from Steel Lake may make their way downstream into Redondo Creek east of SR 99 during periods of high flows.

Redondo Creek is conveyed underneath SR 99 in the stormwater system for approximately 2,000 feet before emerging from a culvert near the intersection of Dash Point Road (Exhibit 3-3 and Appendix E: Sheets 22 and 23). The stream flows down a steep cascade of rip rap and cobble at the bottom of a steep ravine alongside Redondo Way S. The stream channel in this cascade section is approximately 10 feet wide at bankfull and 60 feet in length, after which the stream gradient lessens to a shallow riffle. The stream bed becomes dominated by gravels and narrows to approximately 6 feet wide. The steep hillsides along both banks of this reach are vegetated with sparse undergrowth and mature conifer trees, and scour along both banks was evident.

Approximately 160 feet downstream of the culvert exit, the stream enters a high-gradient 36-inch-diameter pipe culvert that conveys it under a utility corridor drive. At the culvert exit on the north side of the utility drive, the stream then cascades down rip rap and cobble on the steep road embankment. The hanging exit, high gradient, and undersized configuration of this culvert pose a passage barrier to fish.

The stream continues generally northward along the bottom of a forested ravine parallel to Redondo Way S. The stream in this reach is generally at a 3 to 4 percent gradient and consists mostly of shallow riffle habitat with gravel substrate and steep vegetated banks, with scour present along both banks. The channel is fairly uniform in width at about 7 to 8 feet at OHWM, and a water depth of 4 to 8 inches during the time of the field visit. The lack of habitat complexity including pools and other areas of refuge detract from the quality of potential fish habitat in this reach. The stream roughly follows the toe of the roadway embankment through mixed second-growth Douglas-fir and bigleaf maple forest with shrub understory of Indian plum, red elderberry (*Sambucus racemosa*), sword fern, and salal (*Gaultheria shallon*).

Approximately 600 feet downstream of the culvert under the utility corridor road, Redondo Creek enters another culvert that conveys it under Redondo Way S. This culvert entrance is a vertical drain structure and creates a complete passage barrier to fish. Further downstream, the creek re-emerges on the west side of Redondo Way S and follows the roadway northwest toward Puget Sound. Another passage barrier exists approximately 1,000 feet from the shoreline of Puget Sound where the creek is again conveyed into a vertical drain structure beside a parking area next to Redondo Way S. This last 1,000 feet of the creek is then conveyed through a pipe that emerges on the seawall on the shoreline of Puget Sound.

Available resources indicate coho salmon are or have been present in the lower reach of Redondo Creek downstream of S 291st Place to Puget Sound (WDFW, 2016; StreamNet, 2014). A shoreline report for the City of Des Moines states that Redondo Creek has the habitat to support coho salmon and cutthroat trout, although none have been observed (Adolfson Associates, 2004). Habitat within the study reach was observed to be good riffle habitat; however, pools and flow refugia were lacking. The riparian areas surrounding the study reach are of adequate size to provide shade and cover as well as LWD recruitment. The culvert under the utility road provides a complete fish passage barrier and isolates the upper and lower reaches of the stream within the study area.

At the downstream end of the study reach, approximately 750 feet downstream of the culvert under SR 99 and Dash Point Road, Redondo Creek enters a vertical drain structure that poses a complete passage barrier to fish leaving or returning to the study area reach during wet periods. During the field visit in January 2014, the stream reach in the study area was dry and therefore not inhabited by fish species. Field observations also confirmed that Redondo Creek downstream of the study area passes through several pipe systems, and its confluence with Puget Sound is also from within a pipe. The configuration of the vertical drain structures in these piped sections precludes fish passage between the study reach and Puget Sound.

3.2.3 Tribal Fishing

Judicial decisions have affirmed that federally recognized tribes have treaty rights that include, but are not limited to, the rights to harvest fish free of state interference (subject to conservation principles) and to co-manage the fishery resource. The Green River and Puget Sound are among the usual and accustomed fishing areas of the federally recognized Muckleshoot Indian Tribe. Project impacts on tributaries of these water bodies could affect the productivity of tribal fisheries, and thereby harm the fishing interests of the Muckleshoot and other tribes. Sound Transit is therefore addressing potential downstream effects on fish and fish habitat in this report and coordinating with the Muckleshoot Indian Tribe Fisheries Division regarding these potential effects.

3.2.4 Federal and State Threatened, Endangered, and Candidate Species

No ESA-listed or state-listed fish species or critical habitat are known to occur within the study area (WDFW, 2015 and 2016; Kerwin and Nelson 2000). Several species of salmonids such as Puget Sound Chinook (*Oncorhynchus tshawytscha*) and Puget Sound steelhead are listed as threatened and inhabit the Green River and Puget Sound. These water bodies are well outside the study area, although they are hydrologically connected to the stream reaches within the FWLE study area. Consequently, pollutants in runoff and stormwater generated by the proposed action could eventually make their way downstream into areas where these listed species and habitats occur. Stormwater analysis described in the Biological Assessment prepared for this project (Appendix I) determined however, that runoff from the FWLE would not reach any waterbodies that contain listed species or their designated habitats. Northwest of the study area, Des Moines Creek is a fish-bearing stream and is used by coho salmon and cutthroat trout (WDNR, 2014b; WDFW, 2016; Kerwin and Nelson, 2000), but it is situated approximately 1/2 mile to the west, well outside the study area. Coho salmon, a federal species of concern, is known to inhabit the Green River, Des Moines Creek, and the lower reaches of McSorley Creek, as well as the downstream reaches of Bingaman Creek where it enters the Green River, outside the study area. Coastal-Puget Sound bull trout (*Salvelinus confluentus*) is a federal threatened/state candidate species found in the Green River and Puget Sound. Critical habitat is designated for Puget Sound and in the Green River, but there is none designated in the study area.

The Magnuson-Stevens Fishery Conservation and Management Act protects EFH for federally managed species of Pacific salmon, specifically Chinook, pink (*Oncorhynchus gorbuscha*), and coho salmon. EFH includes “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (Magnuson-Stevens Act, 16 United States Code §1855(b)(2)). These species are not present

within the study area; however, EFH also includes historic distribution and waters formerly accessible to salmon. Coho were likely present in Redondo, Bingaman, and McSorley creeks within the study area before development. Consequently, these water bodies are included in EFH.

3.3 Upland Vegetation and Wildlife Resources

3.3.1 Land Cover Types

The FWLE corridor is within the western hemlock (*Tsuga heterophylla*) forest zone (Franklin and Dyrness, 1988). Western hemlock and western red cedar are the dominant forest species in this zone, although Douglas-fir is also very common. Deciduous species occur primarily in disturbed areas and along rivers and streams.

Due to the heavily developed nature of the project corridor, most of the vegetation present in the study area reflects landscaping practices for urban and suburban areas, with remnant tree canopy retained for shade or aesthetics. Within the maintained road rights-of-way, the vegetation includes a mixture of trees at the rights-of-way margins, native and non-native shrubs, landscaped areas, mowed grasses, and disturbance-tolerant forbs.

Most vegetated areas in the project vicinity are on parcels that are either unsuitable or marginal for development for various reasons (for example, open space needs, steep slopes, presence of wetlands). Vegetation in these parcels typically includes a mixture of native and introduced species.

3.3.2 Upland Forest Habitat

The undeveloped areas west of I-5 and the I-5 right-of-way are predominantly vegetated by non-native species. The I-5 median is maintained clear of trees and the vegetation consists of mowed areas with mixed domestic and invasive grass species and disturbance-tolerant forbs, and small patches of non-native shrubs. Three larger patches of contiguous forest cover were identified along the west side of I-5: one extending from Military Road/Star Lake Road to S 288th Street; one extending from approximately S 292nd Street to S 301st Street; and one extending from Military Road near S 304th Street to approximately S 311th Street. The stand located north of S 288th Street is dominated by native species, while the remaining stands are predominantly non-native.

Several relatively large patches of upland vegetation are present within the study area in the SR 99 corridor (Exhibits 3-1, 3-2, and 3-3). The majority of these areas consist of mixed deciduous and coniferous forest with a disturbed understory (not a native upland classification). Canopy species present in these areas include red alder, bigleaf maple, and Douglas-fir with Pacific madrone, spruce, and western red cedar present in smaller quantities. Shrub species typically include Indian plum and Himalayan blackberry. The largest remnant of native upland forest in the study area is in the McSorley Creek riparian corridor to the west of SR 99.

Sound Transit assessed upland forested habitat within the I-5 and SR 99 corridors and categorized forested areas that were not part of a managed landscape into one of four categories based on scoring adapted from a functional assessment model as described in Section 2.3.2.2. Each habitat patch was delineated based on presence of forest cover and natural vegetation outside maintained vegetated

areas, including wetland and stream buffers. Forested wetland and stream buffers are also described separately in Section 3.3.2.1 below. These are regulated features that are subject to development standards and mitigation under applicable municipal codes.

The four categories denote relative habitat function for use by wildlife:

- Category A habitat has the highest relative quality and is where wildlife use, including species of local importance such as migratory birds, can be expected both on the site and in the surrounding area. This habitat consists of relative large areas with mature conifer or mixed forest canopy, with an abundance of native shrub understory.
- Category B habitat provides slightly less habitat quality than Category A, but provides the likely opportunity for wildlife to use habitat on the site. This type of habitat occupies smaller patch sizes with mature conifer or mixed forest canopy and more invasive species within the understory than Category A habitats.
- Category C habitat represents forested areas where potential for wildlife to use the site is likely low, and patch size is relatively small and lacks connectivity, with less canopy cover and invasive species prevalent within the understory.
- Category D represents areas with little or no functional wildlife habitat and low potential for use, largely based on small patch size, isolation from other habitats, prevalence of invasive species cover, and low plant species richness.

The relative abundance of each of upland forest habitat category within the I-5 and SR 99 corridors is presented in Table 3-5 below.

TABLE 3-5
Acreage of Upland Forest Habitat Categories Assessed in the Preferred Alternative and SR 99 Alternative Study Areas

Category	I-5	SR 99
A	45.8	11.5
B	48.6	9.7
C	14.1	26.4
D	9.7	5.4
Total Acreage	**118.2**	**53.0**

Using the functional assessment model, Sound Transit categorized 118.2 acres of upland forest habitat in the I-5 corridor and 53.0 acres in the SR 99 corridor. The I-5 corridor has 217.1 acres of maintained vegetated areas, including landscaped trees and groundcover, and the SR 99 corridor contains 146.5 acres of maintained vegetated areas.

The I-5 corridor contains a much greater area of upland forested habitat than the SR 99 corridor, and a greater component of higher quality habitat (Categories A and B). However, much of this habitat is

configured in a linear strip that parallels the freeway (Appendix G). This creates a lot of edge habitat relative to the total amount of forest available. Interior core areas are less susceptible to negative edge effects, and relatively round forest tracts with small edge-to-interior ratios are more secure for wildlife. Thin, elongated forests (such as those along I-5) may have very little or no core area and can be highly vulnerable to edge effects. Human-modified areas surrounding a forest fragment are usually altered into younger, smaller stands of trees. These edge areas are attractive to invasive species that colonize several hundred meters into the adjacent forest fragment and alter the plant species composition and relative abundance, which in turn affects the suitability of the habitat for various wildlife species.

Connectivity and proximity to other important habitats are also key features in higher value habitat, and the areas that scored the highest (Category A) all adjoin large wetland areas with forested buffers, the main one being the McSorley Creek Wetland. Many species of birds, mammals, reptiles, and amphibians feed or breed in wetlands but also need access to surrounding uplands to fulfill all of their life-sustaining requirements.

Upland forested areas in the I-5 corridor were mostly categorized as B and C (Table 3-5) and represent moderate wildlife habitat value. Forest canopy cover and large conifers are prevalent, and an abundant shrub layer and relatively few invasive species characterize many of these areas. The two areas that scored the lowest in terms of functional habitat quality are patches near the Midway Landfill site that have sparse canopy and abundant invasive species cover.

The upland forest patches along the SR 99 corridor tend to be small and isolated from other habitat areas by urban development and roadways (Appendix G). The two areas that scored the highest in the SR 99 corridor adjoin much larger tracts that include a large forested area adjoining Wetland 15-1 and the Redondo Creek riparian corridor. The forested areas alongside SR 99 in the McSorley Creek corridor and McSorley Creek wetlands are included in the upland habitat assessment and are also accounted for as part of riparian and wetland buffer areas considered in the impacts analysis.

3.3.2.1 Wetland Buffers

Wetland buffers along the I-5 and SR 99 corridors vary in composition and connectivity to higher-quality upland habitat. The acreage of wetland buffers by upland forest habitat category the I-5 and SR 99 corridors is presented in Table 3-6 below.

TABLE 3-6
Acreage of Wetland Buffer by Upland Forest Habitat Category
Assessed in the I-5 and SR 99 Alternative Study Areas

Category	I-5	SR 99
A	9.3	5.4
B	7.5	0.3
C	4.1	6.2
D	0	0
Total Acreage	**20.9**	**11.9**

In the I-5 corridor, wetland buffers are predominantly Category A habitat. The buffers for Wetland 12-1 (McSorley Creek Wetland) and the Star Lake/Military Road wetland complex (25-1, 25-2, 25-2a, 25-4, and 25-5) are Category A because they have more diverse native plant species composition and habitat features, and have connectivity with larger tracts of undeveloped forest and wetland habitat. Wetland buffers that are Category B habitat have lesser-quality forest composition but still have connectivity to other undeveloped habitat. Category C wetland buffers are relatively small, isolated areas of degraded forest habitat that are isolated by development from larger tracts of undeveloped forest.

In the SR 99 corridor, Category A wetland buffers are associated with McSorley Creek Wetland and Wetland 15-1. Most of the wetland buffers along the SR 99 corridor have limited upland habitat function because they are isolated from larger tracts of undeveloped lands. The buffer for Wetland 15-1 provides higher habitat functions as it has features comparable to adjoining Category A upland habitat and is connected to the Dash Point/Poverty Bay Open Space Area, which is designated as a Biodiversity Area and Corridor by WDFW (2015).

3.3.2.2 Stream Buffers

Stream buffers in the I-5 corridor are composed of riparian areas along Bingaman Creek north and south of S 288th Street. Approximately 2.6 acres of forested habitat north of S 288th Street is high-quality conifer-dominated mature forest with a well developed shrub layer and low amounts of invasive species, and is therefore classified as Category A. The 2.9 acres of riparian habitat south of 288th is smaller and less functional due to higher levels of disturbance and lower native species richness, and is classified as Category B habitat. The small unnamed stream channel south of Kent-Des Moines Road contains riparian forest vegetation on the west side, but has mowed vegetation between the channel and the I-5 shoulder. This habitat provides low functional value and was scored as Category D.

Stream buffers in the SR 99 corridor consist of 2.6 acres of Category B habitat and 5.5 acres of Category C habitat and generally provide lower quality habitat than the Bingaman Creek area due to being isolated by surrounding development and having poorer vegetation composition. The habitat around the Massey Creek and associated wetlands, and around McSorley Creek west of SR 99 was assessed as Category C. These patches of forest are small, isolated areas with few mature conifers. The Redondo Creek stream buffer contains a much larger area and has a mature conifer and mixed forest canopy; consequently, it scored higher and was rated as a Category B.

3.3.3 Terrestrial Wildlife Species

In urban environments such as the FWLE corridor, where natural habitats are fragmented and isolated, habitat reserves consist of designated areas, such as wildlife refuges, and undesignated areas, such as parks and open spaces. Wildlife habitat corridors may be vegetated slopes, riparian corridors, or fence rows. Patches of native vegetation, such as riparian areas, canyons, cliffs, and lake edges, are often left undeveloped within urban zones. Wildlife corridors are remnant habitat, regenerated habitat, or artificially created habitat that links larger areas of wildlife habitat. Corridors provide opportunity for animals to move between larger areas that they inhabit by providing patches or pathways of vegetation cover and habitat through which animals can move within otherwise developed and

urbanized areas. Wildlife found in and around these remnant habitats are usually a subset of the wildlife normally expected for each habitat. The species assemblages in these areas are often determined by the size of the remnant patch, as well as the degree and amount of urbanization surrounding it (Ferguson et al., 2001). Wildlife corridors can reduce or moderate some of the adverse effects of habitat fragmentation by facilitating the dispersal of individuals between areas of remaining habitat.

Throughout the length of the project area, I-5 poses an impediment to wildlife movements between the Green River Valley in the east (with natural areas including McSorley Creek) and the Puget Sound shoreline to the west. Underpasses can provide potential crossing points for terrestrial animals, particularly where tracts of natural vegetation occur on each side and along roadways, such as at Military Road and S 288th Street. Connectivity between the McSorley Creek wetlands and the riparian corridor downstream is also impeded by SR 99, which separates the forested wetland from a corridor of tree cover and vegetation that connects to park areas and the Puget Sound shoreline to the west. The forested areas along the west side of I-5, including the Preferred Alternative corridor, also provide for north-south movements of wildlife along the west side of I-5. Although intersected by cross streets, this forested strip can provide a movement corridor that connects larger areas of natural cover, such as forested areas around Military Road and McSorley Creek. These forested slopes would mostly be used by migratory songbirds and small mammals, such as squirrels.

The study area lies within a mapped medium-density urban habitat zone having 30 to 59 percent impervious surface (Chappell et al., 2001). The McSorley Creek riparian and wetlands area between SR 99 and I-5 has the largest tract of forested habitat in the study area. This area contains a relatively large amount of undeveloped habitats that support small mammals, reptiles, amphibians, and birds, in greater abundance than typically found in highly urbanized areas. Wetland and riparian areas can support reptiles and amphibians, such as garter snakes and frogs. No frogs or snakes were observed during the field survey, but the common garter snake (*Thamnophins sirtalis*), Pacific treefrog (*Hyla regilla*), bullfrog (*Rana catesbeiana*), and possibly northern red-legged frog (*Rana aurora*) may inhabit wetland areas, such as those around McSorley Creek.

Small mammal species that inhabit medium-density urban habitats include rat (*Rattus* spp.), mouse (*Peromyscus* spp.), vole (*Microtus* spp.), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), Eastern gray squirrel (*Sciurus carolinensis*), and possibly skunk (*Mephitis mephitis*). Several bat species, including big brown bat (*Eptesicus fuscus*), hoary bat (*Lasiurus cinereus*), and little brown bat (*Myotis lucifugus*), are also present and inhabit forested, riparian, as well as urban and suburban areas. No evidence of beaver was observed during the field visit. Some larger mammals that are likely present but were not observed during the field visit include Columbian black-tailed deer (*Odocoileus hemonius columbianus*) and coyote (*Canis latrans*).

The FWLE alternatives lie within the Pacific Flyway, a migratory corridor consisting of the western coastal areas of South, Central, and North America. Wetlands, lakes, and vegetated areas in the project vicinity serve as foraging or resting grounds for migratory and resident bird species. Birds can transit developed areas and use the forested areas in the project corridor for roosting and cover. The

McSorley Creek forested wetland is large area with varied tree species and shrubs and can provide nesting habitat for some bird species, primarily songbirds. Numerous bird species that are known to use the study area or were observed during the field visit include house sparrow (*Passer domesticus*), white-crowned sparrow (*Zonotichia leucophrys*), song sparrow (*Melospiza melodia*), common yellowthroat (*Geothlypis trichas*), yellow warbler (*Dendroica petechial*), northern flicker (*Colaptes auratus*), American robin (*Turdus migratorius*), American crow (*Corvus brachyrhynchos*), dark-eyed junco (*Junco hyemalis*), black-capped chickadee (*Poecile atricapillus*), and marsh wren (*Cistothorus palustris*). Several species of waterfowl were observed using the stormwater ponds in the project vicinity at Kent-Des Moines Road and alongside McSorley Creek by S 260th Street. These included several pairs of mallards (*Anas platyrhynchos*), a pair of buffleheads (*Bucephala albeola*), and two common goldeneye (*Bucephala clangula*). These species are fairly common throughout the region and are not listed federally or in Washington state. No bald eagle (*Haliaeetus leucocephalus*) nests were observed during the field visits, but several individual bald eagles were observed flying overhead during the wetland and upland surveys.

Many bird species that may occur in the study area are protected under the Migratory Bird Treaty Act (MBTA), and habitats in the study area support migratory birds at some time in their life cycle. The MBTA, administered by the USFWS, makes it unlawful for anyone “at any time, by any means, or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, [or] possess” migratory birds or their nests or eggs except in accordance with regulations of USFWS.” The law also applies to feathers, eggs, nests, and products made from migratory birds.

3.3.4 Threatened, Endangered, and Candidate Species

Listed terrestrial species in the region include the marbled murrelet, streaked horned lark, yellow-billed cuckoo, and Oregon spotted frog. None of these species are documented to occur in the project study area (WDFW, 2015 and 2016), and neither individuals nor suitable habitat were observed during field assessments for the project.

Marbled murrelets are diving seabirds that nest in old-growth forest stands. There is very limited mature forest in the project corridor or surrounding urban environment, and therefore the type of breeding habitat required by marbled murrelets is lacking in the action area. The WDFW PHS data (2015) also indicate that there are no marbled murrelets or their habitat in the action area. There was a single murrelet presence detection documented from 1974 at the southern end of the action area near Federal Way. Given the project location between Puget Sound and inland nesting areas in the Cascades to the east, there is the potential that a few marbled murrelets could fly over the action area while transiting between marine foraging areas and inland nesting sites.

The streaked horned lark is a rare subspecies of horned lark that nests on grasslands and sparsely vegetated areas at airports, sandy islands, and coastal spits in Washington. The only area of potential suitable streaked horned lark habitat in the project corridor is at the Midway Landfill site, which consists of about 70 acres of open grassy land cover. Although typical habitat patches for streaked horned lark are considered to be 300 or more acres, they have been known to occupy smaller areas less than 100 acres (Anderson and Pearson, 2015). Streaked horned larks have not been documented

at the landfill or in surveys at Seattle-Tacoma International Airport north of the action area (Martha Jensen, USFWS, personal communication, March 2016) and their presence in the action area is unlikely.

The western yellow-billed cuckoo breeds in large blocks of riparian habitat, particularly woodlands with cottonwoods and willows. The western yellow-billed cuckoo was widespread and locally common in portions of Washington (USFWS, 2013), including the Puget Sound lowlands and along the lower Columbia River in Washington (USFWS, 2013). The species used to be widespread in King County, but the latest detection was in the late 1990s when a dead yellow-billed cuckoo was detected in a peregrine falcon nest on the Washington Mutual Tower in Seattle (Emily Teachout, USFWS, personal communication, March 2016). The WDFW PHS database has no record of yellow-billed cuckoo in the action area (WDFW, 2015). However, potential migratory habitat, which includes secondary growth woodland and hedgerows (Hughes, 1999), is present. Additionally, migrating yellow-billed cuckoo may shelter or feed in urbanized settings, so the urbanized surroundings and the presence of the highway do not preclude them from using forests along I-5 (Emily Teachout, USFWS, personal communication, March 2016). Therefore, although their presence is unlikely, there is the potential that yellow-billed cuckoo may transit or rest in the project corridor during their migratory season.

Oregon spotted frog is considered to be present in the Green River watershed in Kent. McSorley Creek Wetland is outside the Green River Valley watershed and lacks extensive emergent habitat with good sun exposure suitable for egg-laying, and it lies in a highly urbanized watershed (Germaine and Cosentino, 2004). The headwater wetlands for Bingaman Creek are within the Green River watershed, but do not provide suitable habitat and are inaccessible from areas in the Green River Valley.

The western toad (*Bufo boreas*) is a state candidate and federal species of concern that is found in Lake Washington and other water bodies in the area, but is unlikely to occur within the study area for the project. The lack of surface water ponds and the extent of human disturbance and developed areas likely preclude the presence of this species in the study area. WDFW has also identified the McSorley Creek Biodiversity Area and Corridor, located approximately 300 feet west of SR 99 at the west edge of the study area, as a priority habitat area (WDFW, 2015). More detailed biological information on species that inhabit this area would likely be required if the S 260th West Station Option is selected as part of the project to be built.

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4.0 Environmental Consequences

This chapter describes the potential impacts of the FWLE alternatives on wetlands; aquatic species and habitat; vegetation; and terrestrial wildlife and wildlife habitat. The discussion of project impacts assumes that the BMPs described in Appendix F would be implemented and perform as expected to avoid and minimize certain impacts during construction.

4.1 Wetlands

4.1.1 Long-Term Impacts

4.1.1.1 Impacts Common to All Alternatives

The FWLE build alternatives would have direct, long-term impacts on wetlands where the project footprint would cross wetlands or buffers. Filling or excavating within wetlands for column placement, at-grade guideways, trenched guideways, and retaining or sound walls would result in loss of wetland function through the loss of area, changes to surface or subsurface water flows, or long-term changes to vegetation. Along elevated alignments, grading and filling to install support columns and bridge support structures would result in long-term loss of wetland and wetland buffer area where such structures are placed, resulting in loss of wetland functions, although to a lesser extent than at-grade alignments. Shading effects would occur in areas under the elevated guideway where structures are not placed and would affect the type and quantity of vegetation that could be established in these areas. For these reasons, the impacts analysis considered wetland areas located under elevated guideways as permanently impacted. Where possible, Sound Transit would design stormwater systems on guideways over wetlands to not divert stormwater runoff away from the wetlands. At-grade and trench profiles would also result in long-term loss of wetland and buffer acreage due to creation of new guideways in cuts or on fill with fill and retaining and sound walls. Stormwater facilities for all types of profiles could affect wetland buffers. All of these activities can permanently change the capacity of a wetland to perform particular functions such as detention of stormwater, filtering pollutants, protecting stream banks, and providing habitat for wildlife. As discussed above, elevated alignments would result in a smaller long-term footprint, allowing for retention of more wetland area and regeneration of vegetation under elevated structures, whereas at-grade or trench alignments would permanently convert wetlands to a developed condition.

4.1.1.2 Impacts by Alternative

Table 4-1 summarizes potential direct impacts of the build alternatives on wetlands and wetland buffers because of grading or filling those areas. Impacts are described by alternative. Station or alignment options are described or quantified as an increase or decrease relative to the alternative(s) with which they are associated. See Appendix E for the locations of potential long-term impacts of the build alternatives and options on wetlands and wetland buffers. Table 4-2 quantifies wetland buffer impacts by upland forest habitat categories.

TABLE 4-1
Summary of Potential Long-Term Direct Impacts on Wetlands by FWLE Alternative and Option

Alternative	Total Wetland Impacts (acres)	Wetland Impact by Ecology Category (acres)[a,b]	Wetland Buffer Impacts (acres)	Wetland ID[c]
Preferred Alternative	**1.3**	**Category II: <0.1 Category III: 1.1 Category IV: 0.1**	**6.6**	**5-1, 12-1, 20-3, 24-2 25-2, 25-2a, 25-5, 26-1, 27-1, 27-2, 27-3, 28-2, 28-3**
Kent/Des Moines Station Options				
Kent/Des Moines At-Grade Station Option	+0.6	Category III: +0.6	+1.2	Also impacts: 20-2
Kent/Des Moines I-5 Station Option	+0.6	Category III: +0.6	+0.2	Also impacts: 20-2
Landfill Median Alignment Option	--	--	-0.2	--
S 272nd Star Lake Elevated Station Option	--	--	--	--
S 317th Elevated Alignment Option	--	--	--	--
Federal Way City Center Station Options				
Federal Way I-5 Station Option	--	--	-<0.1	--
Federal Way S 320th Park-and-Ride Station Option	+0.1	Category III: +0.1	+0.3	Also impacts: 30-3
SR 99 Alternative	**< 0.1**	**Category II: <0.1 Category III: <0.1**	**0.2**	**11-1, 12-1, 12-2, 12-3, 17-1**
S 216th Station Options				
S 216th West Station Option	--	--	--	--
S 216th East Station Option	--	--	--	--
Kent/Des Moines Station Options				
Kent/Des Moines HC Campus Station Option	+0.2	Category IV: +0.2	+0.2	Also impacts 6-2, 6-4
Kent/Des Moines HC from S 216th West Station Option	+0.1	Category IV: +0.1	+0.2	Also impacts: 6-2, 6-3, 6-4
Kent/Des Moines SR 99 Median Station Option	--	--	--	--
Kent/Des Moines SR 99 East Station Option	--	--	--	--
S 260th Station Options				
S 260th West Station Option	+0.1	Category II: +<0.1 Category III: +0.1	+0.3	--
S 260th East Station Option	+0.4	Category II: +0.4	+0.2	Avoids: 12-2 and 12-3
S 272nd Redondo Trench Station Option	+0.4	Category II: +0.4 Category IV: +<0.1	+0.4	Also impacts: 15-1 and 16-1 Avoids: 12-2,12-3, and 17-1
Federal Way SR 99 Station Option	--	--	--	--
SR 99 to I-5 Alternative	**0.7**	**Category II: <0.1 Category III: 0.6 Category IV: 0.1**	**4.1**	**5-1, 12-1, 20-3, 24-2, 25-2, 25-2a, 25-5, 26-1, 27-1, 27-2, 27-3, 28-2, 28-3**
S 216th Station Options				
S 216th West Station Option	--	--	--	--
S 216th East Station Option	--	--	--	--

TABLE 4-1

Summary of Potential Long-Term Direct Impacts on Wetlands by FWLE Alternative and Option

Alternative	Total Wetland Impacts (acres)	Wetland Impact by Ecology Category (acres)[a,b]	Wetland Buffer Impacts (acres)	Wetland ID[c]
Landfill Median Alignment Option	--	--	--	--
Federal Way City Center Station Options				
Federal Way I-5 Station Option	--	--	--	--
Federal Way S 320th Park-and-Ride Station Option	+0.1	Category III: +0.1	+0.3	Also impacts: 30-3
I-5 to SR 99 Alternative	**< 0.1**	**Category II: <0.1** **Category III: <0.1**	**0.4**	**5-1, 11-1, 12-1, 12-2, 12-3, 17-1**
S 260th Station Options				
S 260th West Station Option	+0.1	Category II: +<0.1 Category III: +0.1	+0.3	--
S 260th East Station Option	+0.4	Category II: +0.4	+0.2	Avoids: 12-2 and 12-3
S 272nd Redondo Trench Station Option	+0.4	Category II: +0.4 Category IV: +<0.1	+0.4	Also impacts 15-1 and 16-1 Avoids: 12-2,12-3, and 17-1
Federal Way SR 99 Station Option	--	--	--	--

[a] All wetland ratings are Ecology ratings. One wetland, Wetland 5-1, occurs in SeaTac but is rated as Category III under both Ecology and SeaTac rating systems.
[b] Totals may vary from the sum of individual numbers due to rounding.
[c] Long-term footprints would bisect Wetlands 16-1, 20-2, 20-3, 24-2, 25-2a, 26-1, 27-1, 27-2, and 28-3. Because of the small size of these wetlands (under one acre) and likely substantial degradation of wetland functions, the entirety of these wetlands was included in impact calculations.

TABLE 4-2

Summary of Potential Long-Term Impacts on Wetland Buffers as Categorized by the Upland Habitat Assessment Model

Alternative	Habitat Category A Impacts (acres)	Habitat Category B Impacts (acres)	Habitat Category C Impacts (acres)	Habitat Category D Impacts (acres)	Total Habitat Impacts (acres)[a]
Preferred Alternative	**2.8**	**2.2**	**1.6**	**-**	**6.6**
Kent/Des Moines Station Options					
Kent/Des Moines At-Grade Station Option	--	+1.2	--	--	+1.2
Kent/Des Moines I-5 Station Option	--	+0.2	--	--	+0.2
Landfill Median Alignment Option	**--**	**-0.2**	**--**	--	**-0.2**
S 272nd Star Lake Elevated Station Option	**--**	**--**	**--**	**--**	**--**
S 317th Elevated Alignment Option	--	--	**--**	--	**--**
Federal Way City Center Station Options					
Federal Way I-5 Station Option	--	--	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	--	+0.3	--	+0.3
SR 99 Alternative	**0.2**	**--**	**0.1**	**--**	**0.3**
S 216th Station Options					
S 216th West Station Option	--	--	--	--	--

TABLE 4-2
Summary of Potential Long-Term Impacts on Wetland Buffers as Categorized by the Upland Habitat Assessment Model

Alternative	Habitat Category A Impacts (acres)	Habitat Category B Impacts (acres)	Habitat Category C Impacts (acres)	Habitat Category D Impacts (acres)	Total Habitat Impacts (acres)[a]
S 216th East Station Option	--	--	--	--	--
Kent/Des Moines Station Options					
Kent/Des Moines HC Campus Station Option	--	--	+0.2	--	+0.2
S 216th West Station Option to KDM HC Campus Station Option	--	--	+0.2	--	+0.2
Kent/Des Moines SR 99 Median Station Option	--	--	--	--	--
Kent/Des Moines SR 99 East Station Option	--	--	--	--	--
S 260th Station Options					
S 260th West Station Option	--	--	+0.3	--	+0.3
S 260th East Station Option	+0.2	--	--	--	+0.2
S 272nd Redondo Trench Station Option	**+0.3**	**+0.1**	**--**	**--**	**+0.4**
Federal Way SR 99 Station Option	**--**	**--**	**--**	**--**	**--**
SR 99 to I-5 Alternative	**1.6**	**1.3**	**1.1**	**--**	**4.0**
S 216th Station Options					
S 216th West Station Option	--	-0.1	--	--	-0.1
S 216th East Station Option	--	-	--	--	--
Landfill Median Alignment Option	**--**	**-0.1**	**--**	**--**	**-0.1**
Federal Way City Center Station Options					
Federal Way I-5 Station Option	--	--	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	-	+0.3	--	+0.3
I-5 to SR 99 Alternative	**0.2**	**0.2**	**0.1**	**--**	**0.5**
S 260th Station Options					
S 260th West Station Option	--	--	+0.3	--	+0.3
S 260th East Station Option	+0.2	--	--	--	+0.2
S 272nd Redondo Trench Station Option	**+0.3**	**+0.1**	**--**	**--**	**+0.4**
Federal Way SR 99 Station Option	**--**	**--**	**--**	**--**	**--**

[a] Totals may vary from the sum of individual numbers due to rounding.

Preferred Alternative

The Preferred Alternative would primarily be at-grade, with the exception of elevated guideway structures at crossings of major arterials. The at-grade profile would permanently convert existing vegetated land cover and wetland types to a developed condition within the project footprint. The Preferred Alternative would have 1.25 acres of long-term impacts on 11 wetlands, and 6.6 acres of impacts on 12 wetland buffers, 2.8 acres of which would be upland habitat Category A. The less than 0.1-acre direct impact on the McSorley Creek Wetland (Wetland 12-1) would be avoided and impacts

on this wetland buffer would be slightly reduced if the alignment of the Preferred Alternative were to shift closer to I-5.

Station and Alignment Options

The Kent/Des Moines I-5 At-Grade and I-5 Station options would each have an additional 0.6 acre of wetland impact since the alignment would cross an additional wetland (Wetland 20-2) south of Kent-Des Moines Road. Federal Way S 320th Park-and-Ride Station Option would have an additional 0.1 acre of wetland impacts since the alignment would cross an additional wetland (Wetland 30-3) in the south portion of the corridor. The other station and alignment options would not change wetland impacts.

SR 99 Alternative

The SR 99 Alternative would primarily be elevated in the SR 99 median, except for crossings of Kent-Des Moines Road and S 272nd Street. Although elevated structures could minimize the amount of permanent ground disturbance, the amount of water and sunlight available to the vegetation underneath may still be reduced.

Elevated guideway structures would be relatively narrow (approximately 40 feet wide) and more than 15 feet above the ground surface in most places; the extent of impacts caused by shading on wetland vegetation would depend on the final elevation of the guideway, the slope aspect of the ground surface, and shade tolerance of existing vegetation that would be retained under the guideway. Therefore, it was assumed that wetlands under the guideway would be permanently impacted. The SR 99 alternative would have less than 0.1 acre of long-term impacts on two wetlands and 0.2 acre of long-term impacts on four wetland buffers, 0.2 acre of which is Category A upland habitat.

Station Options

The Kent/Des Moines HC Campus Station Option from S 216th West Station Option and the Kent/Des Moines HC Campus Station Option would cross three wetlands in the headwaters of Massey Creek, resulting in an additional 0.1 and 0.2 acre of direct wetland impact, respectively. The S 260th West Station Option would have an additional 0.1 acre of direct impacts on Wetlands 11-1 and 12-2. The S 260th East Station Option would cross the McSorley Creek Wetland (Wetland 12-1) at several locations along the east side of SR 99, resulting in 0.4 acre of additional wetland impact. The S 272nd Redondo Trench Station Option would have the same impacts on McSorley Creek as the S 260th East Station Option, but would also result in additional impacts to Wetland 16-1.

SR 99 to I-5 Alternative

All wetlands impacts from the SR 99 to I-5 Alternative would occur in the I-5 corridor. This alignment would have 0.7 acre of long-term impacts on 8 wetlands, and 4.1 acres of long-term impacts on 12 wetland buffers, 1.6 acres of which would be Category A upland habitat. South of S 252nd Street, the SR 99 to I-5 Alternative would generally follow the same alignment as the Preferred Alternative, permanently impacting less than 0.1 acre along the northeast edge of McSorley Creek Wetland (Wetland 12-1) adjoining I-5. Impacts from station and alignment options would be the same as for these options with the SR 99 or Preferred alternatives.

I-5 to SR 99 Alternative

The I-5 to SR 99 Alternative would have less than 0.1 acre of long-term impacts on two wetlands, and 0.4 acre of long-term impacts on five wetland buffers, 0.2 acre of which would be Category A upland habitat. The I-5 to SR 99 Alternative generally follows the same alignment as the Preferred Alternative north of Kent-Des Moines Road and would result in long-term impacts on the buffer of one low-quality wetland (Wetland 5-1) in this area. South of Kent-Des Moines Road, the I-5 to SR 99 Alternative would generally follow the same alignment as the SR 99 Alternative, impacting less than 0.1 acre of wetland along the west edge of McSorley Creek Wetland (Wetland 12-1). Impacts from station and alignment options would be the same as for these options with the SR 99 or Preferred alternatives.

4.1.2 Construction Impacts

Although detailed construction limits are not defined at this phase in the project design, potential project construction limits have been estimated near wetlands and wetland buffers. These impact areas are in addition to the long-term direct impacts described in Section 4.1.1.

4.1.2.1 Impacts Common to All Alternatives

Construction impacts that would result in temporary loss of wetlands or wetland buffers include areas that would be cleared of vegetation or temporarily affected while grading occurred, which may temporarily decrease or alter wetland area, soil, hydrology, vegetation, or type. Temporary impacts may result from the use of staging areas, temporary work areas, access roads, stream relocations, cofferdams, clearing, stockpiles, erosion and sediment controls, or other temporary structures necessary to complete construction of the permanent facilities. Wetland and wetland buffer functions could also be impacted by soil compaction, accidental spills of hazardous substances, noise and other human-caused disturbances, sedimentation, and introduction of invasive species. Trench and retained fill construction would require dewatering activities, which could temporarily alter groundwater discharge to wetlands. While temporary impacts are not of the same temporal magnitude as long-term impacts, they may result in short-term decline in wetland functions that lasts for more than one growing season. Prior to construction, best management practices for protecting and minimizing impacts on wetland areas would be identified and implemented during construction. Proposed best management practices are discussed in Appendix F.

For this analysis, the vegetation clear zone is considered a temporary impact on wetlands because it would not require permanent fill in wetlands. However, converting forested wetlands to scrub-shrub or emergent wetlands within the vegetation clear zone may be considered a long-term loss of forested wetland habitat by regulatory agencies.

4.1.2.2 Impacts by Alternative

Table 4-3 summarizes temporary impacts on wetlands and wetland buffers that could potentially occur during construction for each build alternative. See Appendix E for the locations of these impacts.

TABLE 4-3
Summary of Temporary Construction Impacts on Wetlands by FWLE Alternative and Option

Alternative	Wetland Impacts (acres)	Wetland Buffer Impacts (acres)	Wetland ID
Preferred Alternative	**0.8**	**4.0**	**5-1, 12-1, 20-3, 24-2, 25-2, 25-2a, 25-5, 26-1, 27-1, 27-2, 27-3, 28-2, 28-3**
Kent/Des Moines Station Options			
Kent/Des Moines I-5 At-Grade Station Option	--	+0.2	Also impacts: 20-2
Kent/Des Moines I-5 Station Option	--	+0.3	Also impacts: 20-2
Landfill Median Alignment Option	--	+<0.1	Also impacts: 20-2
S 272nd Star Lake Elevated Station Option	--	--	--
S 317th Elevated Alignment Option	--	--	--
Federal Way City Center Station Options			
Federal Way I-5 Station Option	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	--	--
SR 99 Alternative	**<0.1**	**0.2**	**11-1, 12-1, 12-2, 12-3, 13-1, 15-1**
S 216th Station Options			
S 216th West Station Option	--	--	--
S 216th East Station Option	--	--	--
Kent/Des Moines Station Options			
Kent/Des Moines HC Campus Station Option	+<0.1	+0.1	Also impacts: 6-2, 6-3, and 6-4
Kent/Des Moines HC from S 216th West Station Option	+.01	+0.1	Also impacts: 6-2, 6-3, and 6-4
Kent/Des Moines SR 99 Median Station Option	--	--	--
Kent/Des Moines SR 99 East Station Option	--	--	--
S 260th Station Options			
S 260th West Station Option	+0.1	-<0.1	--
S 260th Station East Option	+0.2	+0.2	Avoids: 12-2, 12-3, 13-1
S 272nd Redondo Trench Station Option	+0.2	+0.1	Avoids: 12-2, 12-3, 13-1
Federal Way SR 99 Station Option	--	--	--
SR 99 to I-5 Alternative	**0.6**	**5.3**	**12-1, 20-3, 24-2, 25-2, 25-2a, 25-5, 26-1, 27-1, 27-2, 27-3, 28-2, 28-3**
S 216th Station Options			
S 216th West Station Option	--	--	--
S 216th East Station Option	--	--	--
Landfill Median Alignment Option	--	--	--

TABLE 4-3
Summary of Temporary Construction Impacts on Wetlands by FWLE Alternative and Option

Alternative	Wetland Impacts (acres)	Wetland Buffer Impacts (acres)	Wetland ID
Federal Way City Center Station Options			
Federal Way I-5 Station Option	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	--	--
I-5 to SR 99 Alternative	**<0.1**	**0.3**	**5-1, 11-1, 12-1, 12-2, 12-3, 13-1, 15-1, 17-1**
S 260th Station Options			
S 260th West Station Option	+0.1	-<0.1	--
S 260th Station East Option	+0.2	+0.2	Avoids: 12-2, 12-3, and 13-1
S 272nd Redondo Trench Station Option	+0.2	+0.1	Avoids: 12-2, 12-3, and 13-1
Federal Way SR 99 Station Option	--	--	--

Preferred Alternative

The Preferred Alternative would have 0.8 acre of temporary impacts on 6 wetlands and 4.0 acres of temporary impacts on 13 wetland buffers. The Kent/Des Moines I-5 Station Option would add up to 0.3 acre of temporary impacts. The Landfill Median Alignment would temporarily impact less than 0.1 acre of the edge of the buffer of Wetland 20-2.

SR 99 Alternative

The SR 99 alternative would have less than 0.1 acre of temporary construction impacts on three wetlands and 0.2 acre of temporary impacts on five wetland buffers. The Kent/Des Moines HC Campus Station Option would temporarily impact three wetlands in the headwaters of Massey Creek, resulting in less than 0.1 acre of additional temporary wetland impact. The Kent/Des Moines HC Campus Station Option from S 216th West Station Option would temporarily impact three wetlands in the headwaters of Massey Creek, resulting in 0.1 acre additional impact. The S 260th West Station Option would result in 0.1 acre of additional temporary impacts on Wetlands 11-1 and 12-2. The S 260th East Station Option would temporarily impact McSorley Creek Wetland (Wetland 12-1) at several additional locations along SR 99, resulting in 0.2 acre of additional temporary wetland impact. The S 272nd Redondo Trench Station Option would avoid temporary impacts on four wetlands, but would result in 0.2 acre of additional temporary wetland impacts on one other wetland (Wetland 16-1). Construction of the S 272nd Redondo Trench Station Option may require direct dewatering in small portions of the Wetland 16-1 adjoining the east side of SR 99. However, the effect of dewatering is anticipated to be localized and temporary because the duration of groundwater drawdown would be less than 8 weeks, and groundwater levels are anticipated to recover quickly in the McSorley Creek Wetland, which is a large basin with a high groundwater table throughout the wetland.

SR 99 to I-5 Alternative

The SR 99 to I-5 Alternative alignment would have 0.6 acre of temporary impacts on 7 wetlands and 5.3 acres of temporary impacts on 12 wetland buffers. South of Kent-Des Moines Road, the SR 99 to I-5 Alternative would follow an alignment similar to the I-5 Kent/ Des Moines SR 99 East Station Option, temporarily impacting less than 0.1 acre of the northeast edge of McSorley Creek Wetland that adjoins I-5.

I-5 to SR 99 Alternative

The I-5 to SR 99 Alternative alignment would result in less than 0.1 acre of temporary impacts on three wetlands and 0.3 acre of temporary impacts on six wetland buffers. This alignment would result in less than 0.1 acre of temporary impact on a portion of the McSorley Creek Wetland (Wetland 12-1) adjoining SR 99. The S 260th West and East Station Options would affect an additional 0.1 and 0.2 acre of wetland, respectively, whereas the S 272nd Redondo Trench Station Option would result in 0.2 acre additional temporary impacts.

4.2 Aquatic Species and Habitat

4.2.1 Long-Term Impacts

This section describes the long-term impacts from the FWLE alternatives on streams and aquatic habitat in the study area.

4.2.1.1 Impacts Common to All Alternatives

Potential long-term impacts from the FWLE alternatives include increases in the amount of impervious surface in the study area, which can increase stormwater runoff rates and volumes and affect stream flows, as well as increase pollutant loads, potentially affecting stream water quality. In general, converting natural groundcover to impervious surface can lead to higher peak flows and create flashiness in stream flows, which can increase erosion and alter sediment and substrate distributions downstream. New impervious areas would include new tracks and guideways, stations, park-and-ride lots, and roads. In cases where the elevated guideway would be over existing roadways, these segments are not counted as new impervious surface in order to avoid double counting the guideway and the road underneath.

Streams within the study area are all fairly small and range in width from 4 to 15 feet at the OHWM. In cases where an elevated alignment crosses perpendicular to the stream channel, the structure would span the stream with the support columns placed on either side beyond the stream banks and outside the OHWM of the stream and, therefore, would not directly impact the bed and bank of streams or result in long-term impacts on in-stream habitat. For elevated guideways, columns are generally placed every 100 to 125 feet. The spacing and location of columns on either side of a creek crossing would be designed to maximize the distance between the creek and these columns to the extent practicable. The exception to this is Bingaman Creek, where the guideway structure runs parallel to and over the existing stream channel. In this case, spanning the stream is not possible, and the stream would need to be relocated under the guideway structure as described later for the Preferred Alternative. Sound

Transit would coordinate with WSDOT to ensure that the FWLE provides adequate space for any future replacement of culverts that are currently barriers to fish passage.

At all stream crossings the riparian areas would be impacted by the loss of forested vegetation within the long-term footprint. Forest habitat would not regenerate in the footprint or vegetation clear zone. However, low shrubs and groundcover vegetation could still regenerate under the guideway after construction. The riparian areas within the long-term project footprint would consequently lose functionality by reducing the potential for the recruitment of large woody material, cover, and nutrient inputs to the stream channel within the impacted area. Almost all LWD input to streams from riparian areas is recruited from the areas within a distance approximately equal to half the height of the typical tallest trees in the area (Murphy and Koski, 1989; McDade et al., 1990). Construction of at-grade facilities outside of regulatory buffers, therefore, would likely result in minimal reductions in wood recruitment along streams in the study area. Elevated guideways would reduce the amount of water the vegetation under the guideway receives from precipitation and may limit sunlight. In some areas, vegetation cleared from beneath elevated guideways may not grow back. The presence of elevated guideways would also preclude the development of mature forest riparian habitat within the project footprint.

Where the guideway would cross stream channels perpendicularly, impacts would be limited to the riparian areas in the project footprint and would not directly affect riparian areas upstream and downstream. The streams in the study area are in highly urbanized environments and next to existing transportation corridors. The addition of the overhead structure and light rail noise would likely have minimal impacts. Operation of the FLWE would not be expected to increase nighttime illumination of fish-bearing waters (which could increase the risk of predation on juvenile salmonids) because the tracks would have no overhead lighting and the train headlights would be directed parallel to the tracks.

4.2.1.2 Impacts by Alternative

This section describes the potential long-term impacts on aquatic resources for each of the FWLE alternatives and options. Calculated impact areas for streams and stream buffers are summarized in Tables 4-4 and 4-5.

TABLE 4-4
Summary of Potential Long-Term Impacts on Streams and Stream Buffers by FWLE Alternative and Option

Alternative	Stream Channel Impact Length (linear feet)	Stream Impact Area (acres)	Stream Buffer Impact (acres)
Preferred Alternative	**Bingaman Creek: 1,015**	**Bingaman Creek: 0.2**	**Bingaman Creek: 2.5**
Kent/Des Moines Station Options			
Kent/Des Moines At-Grade Station Option	--	--	--
Kent/Des Moines I-5 Station Option	--	--	--
Landfill Median Alignment Option	--	--	--
S 272nd Star Lake Elevated Station Option	--	--	--
S 317th Elevated Alignment Option	--	--	--

TABLE 4-4
Summary of Potential Long-Term Impacts on Streams and Stream Buffers by FWLE Alternative and Option

Alternative	Stream Channel Impact Length (linear feet)	Stream Impact Area (acres)	Stream Buffer Impact (acres)
Federal Way City Center Station Options			
Federal Way I-5 Station Option	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	--	--
SR 99 Alternative	**--**	**--**	**McSorley Creek: <0.1 Redondo Creek: <0.1**
S 216th Station Options			
S 216th West Station Option	--	--	--
S 216th East Station Option	--	--	--
Kent/Des Moines Station Options			
Kent/Des Moines HC Campus Station Option	--	--	Massey Creek +<0.1
Kent/Des Moines SR 99 Median Station Option	--	--	--
Kent/Des Moines SR 99 East Station Option	--	--	--
S 260th Station Options			
S 260th West Station Option	--	--	McSorley Creek: +0.3
S 260th East Station Option	--	--	McSorley Creek: +0.1
S 272nd Redondo Trench Station Option	--	--	McSorley Creek: +0.1 Redondo Creek: +0.4
Federal Way SR 99 Station Option	--	--	--
SR 99 to I-5 Alternative	**Bingaman Creek: 1,015**	**Bingaman Creek: 0.2**	**Bingaman Creek: 1.4**
S 216th Station Options			
S 216th West Station Option	--	--	--
S 216th East Station Option	--	--	--
Landfill Median Alignment Option	--	--	--
Federal Way City Center Station Options			
Federal Way I-5 Station Option	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	--	--
I-5 to SR 99 Alternative			**McSorley Creek: <0.1 Redondo Creek: <0.1**
S 260th Station Options			
S 260th West Station Option	--	--	McSorley Creek: +0.3
S 260th East Station Option	--	--	McSorley Creek: +0.1
S 272nd Redondo Trench Station Option	--	--	McSorley Creek: +0.1 Redondo Creek: +0.4
Federal Way SR 99 Station Option	--	--	--

TABLE 4-5
Summary of Potential Long-Term Impacts on Stream Buffers as Categorized by the Upland Habitat Assessment Model

Alternative	Habitat Category A Impacts (acres)	Habitat Category B Impacts (acres)	Habitat Category C Impacts (acres)	Habitat Category D Impacts (acres)	Total Habitat Impacts (acres)[a]
Preferred Alternative	**1.9**	**0.6**	**--**	**--**	**2.5**
Kent/Des Moines Station Options					
Kent/Des Moines At-Grade Station Option	--	--	--	--	--
Kent/Des Moines I-5 Station Option	--	--	--	--	--
Landfill Median Alignment Option	--	--	--	--	--
S 272nd Star Lake Elevated Station Option	**--**	**--**	**--**	**--**	**--**
S 317th Elevated Alignment Option	**--**	**--**	**--**	**--**	**--**
Federal Way City Center Station Options					
Federal Way I-5 Station Option	--	--	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	--	--	--	--
SR 99 Alternative	**--**	**--**	**--**	**<0.1**	**<0.1**
S 216th Station Options					
S 216th West Station Option	--	--	--	--	--
S 216th East Station Option	--	--	--	--	--
Kent/Des Moines Station Options					
Kent/Des Moines HC Campus Station Option	-	--	--	--	--
S 216th West Station Option to KDM HC Campus Station Option	-	--	--	--	--
Kent/Des Moines SR 99 Median Station Option	-	--	--	--	--
Kent/Des Moines SR 99 East Station Option	-	--	--	--	--
S 260th Station Options					
S 260th West Station Option	--	--	+0.3	--	+0.3
S 260th East Station Option	-	--	--	--	--
S 272nd Redondo Trench Station Option	**--**	**+0.3**	**--**	**--**	**+0.3**
Federal Way SR 99 Station Option	**--**	**--**	**--**	**--**	**--**
SR 99 to I-5 Alternative	**+0.8**	**+0.6**	**--**	**--**	**1.4**
S 216th Station Options					
S 216th West Station Option	--	--	+0.5	--	+0.5
S 216th East Station Option	--	--	--	--	--
Landfill Median Alignment Option	**--**	**--**	**--**	**--**	**--**
Federal Way City Center Station Options					
Federal Way I-5 Station Option	--	--	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	--	--	--	--
I-5 to SR 99 Alternative	**--**	**--**	**--**	**<0.1**	**<0.1**

TABLE 4-5
Summary of Potential Long-Term Impacts on Stream Buffers as Categorized by the Upland Habitat Assessment Model

Alternative	Habitat Category A Impacts (acres)	Habitat Category B Impacts (acres)	Habitat Category C Impacts (acres)	Habitat Category D Impacts (acres)	Total Habitat Impacts (acres)[a]
S 260th Station Options					
S 260th West Station Option	--	--	+0.3	--	+0.3
S 260th East Station Option	--	--	--	--	--
S 272nd Redondo Trench Station Option	**--**	**+0.3**	**--**	**--**	**+0.3**
Federal Way SR 99 Station Option	**--**	**--**	**--**	**--**	**--**

[a] Totals may vary from the sum of individual numbers due to rounding.

Preferred Alternative

The Preferred Alternative would be on the west side of I-5 and would be within WSDOT right-of-way south of Kent-Des Moines Road to S 317th Street. The profile would be elevated, trench, or at-grade depending on topography. Bingaman Creek, where it crosses S 288th Street, is the only stream channel that is directly impacted by the Preferred Alternative.

The Preferred Alternative would be elevated over Bingaman Creek both north and south of S 288th Street. The stream channel of Bingaman Creek within the footprint would be routed to meander around the guideway columns to maintain an open channel (Exhibit E: Sheet 10). Changing the physical characteristics of a stream, however, could affect its hydrology and sedimentation downstream, and the impacts are considered permanent because the site would not be returned to its previous condition. The new channel would be designed to maintain flows and water quality conditions. Substrate and bank conditions in the realigned channel would be improved from existing conditions.

North of S 288th Street, Bingaman Creek flows north parallel to and west of I-5 within a wooded area approximately 300 feet wide (Exhibit 4-1, Sheet 2). The project would be directly over the creek, permanently impacting about 540 feet of the stream channel and 1.9 acres of the riparian forest buffer along this reach. South of S 288th Street, Bingaman Creek lies between an I-5 sound wall to the east and a narrow band (up to 50 feet wide) of forested area to the west next to a mobile home park. The project would permanently impact about 475 feet of stream channel and 0.6 acre of riparian buffer in this reach.

Sound Transit would place columns to span as much of the existing stream channel as possible and would realign portions of the creek channel around the columns to minimize impacts by maintaining an open channel throughout with replanted native riparian vegetation. Sound Transit has coordinated with WSDOT, WDFW, and the Muckleshoot Indian Tribe to identify any culverts that are fish passage barriers along the Preferred Alternative. As a result of the coordination, Sound Transit modified the Preferred Alternative near Bingaman Creek to not preclude WSDOT's ability to replace state-owned barrier culverts, including the one under I-5, with stream-simulation-designed culverts for fish passage. Additional guideway design work would occur during final design and project permitting. If it is determined that the state-owned culverts would not be made fish-passable in the future, Sound

Transit may modify the design of the Preferred Alternative near Bingaman Creek. The modified design could include rerouting and permanently piping a portion of the creek and would have impacts similar to those described in the Draft EIS.

The Preferred Alternative would have long-term impacts on a total of 1,015 feet of the existing stream channel as well as 2.5 acres of the existing forested riparian buffer along this reach (Table 4-4). A buffer of at least 115 feet would be maintained north of S 288th Street, except where the emergency access road and traction power substation (TPSS) on this property would encroach on this buffer. South of S 288th Street, the buffer would be maintained to the extent possible within the WSDOT right-of-way.

A small unnamed stream on the west side of I-5, just south of the southbound on-ramp from Kent-Des Moines Road, lies outside the project footprint (Exhibit 3-1) and the stream channel, and its small riparian buffer would not be impacted by the project. This stream does not provide fish habitat, and the surrounding riparian buffer is minimally functional because it has been heavily modified and vegetation has been completely removed along the east side of the channel next to I-5.

The Federal Way S 320th Park-and-Ride Station Option could conflict with a culvert containing Hylebos Creek that travels under the park-and-ride lot. Sound Transit would coordinate closely with WSDOT, WDFW, and the Muckleshoot Indian Tribe on the culvert during final design if this option were selected as part of the project to be built. All other station and alignment options for the Preferred Alternative are all outside areas where stream channels exist, and would therefore have no impacts on streams or riparian buffer.

SR 99 Alternative

Massey, McSorley, and Redondo creeks would intersect the SR 99 Alternative. This alternative would not impact existing stream channels because all three channels are in culverts under SR 99 (Table 4-4). It would have very small impacts on stream buffers along the edges of the existing roadway where the existing roadway would be widened (Appendix E). There would be no impacts on the Massey Creek buffer, less than 0.1 acre on the McSorley Creek stream buffer, and less than 0.1 acre on the Redondo Creek stream buffer.

Kent/Des Moines Station Options

The elevated guideway of the Kent/Des Moines HC Campus Station Option would cross the uppermost section of Massey Creek immediately south of Kent-Des Moines Road. The creek channel lies approximately 200 feet south of the foot of the roadway embankment and flows perpendicular to the guideway. The guideway would span the stream, and the columns would be constructed outside of the channel, avoiding stream impacts. This option would have less than 0.1 acre of impact on the forested riparian buffer surrounding Massey Creek in this reach. The riparian and surrounding vegetated area along Massey Creek is within a wetland, so impacts on the riparian buffer for this reach are captured in the wetlands analysis (Table 4-1). Other station options for the Kent/Des Moines HC Campus Station Option would not have any additional impacts.

S 260th Station Options

The S 260th West Station Option would span McSorley Creek west of SR 99, where the south fork of McSorley Creek flows west and then north for approximately 300 feet immediately west of the

highway after exiting a culvert under SR 99. Approximately halfway along this segment the stream passes through a culvert under a 40-foot-wide unpaved utility access road (Appendix E). Special guideway spans of 250 feet north of the access road and a second span 160 feet south of the access road would avoid directly impacting the stream channel. However, the riparian vegetation surrounding this reach of the creek would be impacted by the guideway. This option would result in a loss of 0.3 acre of this forested riparian corridor between an existing stormwater pond access road and S 260th Street (Table 4-4).

The only culvert passing under SR 99 that is identified by WSDOT (2016) as a potential culvert replacement in the future is the McSorley Creek culvert. The design of either S 260th station option (West or East) would place guideway columns so that the project would not preclude a future culvert replacement by WSDOT. If either S 260th station option is selected by the Sound Transit Board as part of the project to build, additional information would be prepared to further define the space needed for such a replacement.

S 260th East Station Option

The S 260th East Station Option would span the south fork of McSorley Creek on the east side of SR 99 on an elevated guideway. The guideway columns would be outside the OHWM for the creek, and no direct impacts on the creek channel itself would occur. This option would, however, have long-term impacts on 0.1 acre of riparian vegetation in the McSorley Creek Wetland along the east side of SR 99 (captured in the wetlands analysis, Table 4-1).

S 272nd Redondo Trench Station Option

This option would impact the portion of Redondo Creek that emerges from a culvert on the west side of SR 99, just north of Dash Point Road. A short distance north of Redondo Way S, this station option would follow an existing dirt road that runs on the east side of the ravine carrying Redondo Creek. A portion of the alignment would lie directly above the uppermost section of the creek for approximately 150 feet to where it emerges from the pipe system under SR 99 and Dash Point Road (Appendix E). The stream in this reach consists of a shallow channel with a gravel and cobble stream bed approximately 4 feet wide with steep banks, at the base of a ravine. Both sides are steep hill slopes with mature mixed forest cover. The alignment would span this area and avoid column placement in or adjacent to the stream channel, and also be designed to avoid future replacement of the Redondo Creek culvert under the utility road, which is identified as a fish passage barrier. The alignment north of the gravel access road would follow the existing utility corridor and would completely avoid the stream channel and minimize impacts on riparian vegetation. Overall, this option would result in a loss of 0.4 acre of the forested riparian corridor in this reach (Table 4-4).

SR 99 to I-5 Alternative

Like the Preferred Alternative, this alternative would avoid most of the stream crossings in the study area. The alignment would head east to I-5 north of Massey Creek, avoiding the three streams that intersect the SR 99 corridor. The only surface water stream crossing is Bingaman Creek. North of S 288th Street, the creek would be relocated next to the alignment. South of S 288th Street, the stream would be piped under the guideway. If this alternative were selected as the project to be built, the

alignment in this area could be redesigned similar to the Preferred Alternative to reduce impacts on the stream. The Federal Way S 320th Park-and-Ride Station Option could conflict with a culvert containing Hylebos Creek that travels under the park-and-ride lot. Sound Transit would coordinate closely with WSDOT, WDFW, and the Muckleshoot Indian Tribe on the culvert during final design if this option were selected as part of the project to be built. The other SR 99 to I-5 Alternative station options would not have any additional impacts on streams or stream buffers.

I-5 to SR 99 Alternative

The I-5 to SR 99 Alternative would avoid impacts on Massey Creek and Bingaman Creek, and would span McSorley Creek and Redondo Creek, similar to the SR 99 Alternative. As described above for the SR 99 Alternative, there would be no direct impacts on in-stream habitat in the stream channels and less than 0.1 acre of impact on stream buffers. Impacts would be greater with station and alignment options, with up to 0.7 acre of stream buffer impact if both the S 260th West Station Option and the S 272nd Redondo Trench Station Option were selected (Table 4-4).

4.2.2 Construction Impacts

The expected project construction limits have been estimated near streams and stream buffers. These impact areas are in addition to the long-term direct impacts described in Section 4.2.1.

4.2.2.1 Impacts Common to All Alternatives

Temporary construction impacts on streams and their associated buffers are listed in Table 4-6. These impact areas account for a small fringe of disturbance along the project corridors outside the long-term footprint. Stream crossings would be elevated and construction would be outside the stream channel itself. However, temporary culverts or pipe bypasses for the stream may be used in order to prevent impacts on the stream and water quality during construction. Work over or in any water bodies would require a Hydraulic Project Approval from WDFW, and any in-water work would be required to occur during work windows established through agency consultation to encompass periods of the year when fish would be minimally impacted. After construction, these temporary culverts or bypasses would be removed and the stream restored to its original location. Some work would occur below the OHWM of Bingaman Creek, which would be planned to take place as much as possible during the summer months when the creek channel is dry. It is unlikely that construction would be completed within a single seasonally dry period, in which case a temporary piped bypass would be used to convey any flows in Bingaman Creek around the construction site.

The vegetation clear zone that extends up to 11 feet beyond the footprint of the track is considered a temporary impact on stream buffers. Although small segments of forested stream corridor would not be allowed to regenerate forested vegetation cover in riparian corridors, shrub cover would be allowed to regenerate; therefore, stream buffer functions, such as shading and input of organic material from overhanging and stream margin vegetation to streams, would be allowed to reestablish.

TABLE 4-6
Summary of Temporary Construction Impacts on Streams by FWLE Alternative and Option

Alternative	Stream Channel Impact Length (linear feet)[a]	Stream Impact Area (acres)[a]	Stream Buffer Impact (acres)[a]
Preferred Alternative	**--**	**--**	**Bingaman Creek 0.8**
Kent/Des Moines Station Options			
Kent/Des Moines At-Grade Station Option	--	--	--
Kent/Des Moines I-5 Station Option	--	--	--
Landfill Median Alignment Option	--	--	--
S 272nd Star Lake Elevated Station Option	--	--	--
S 317th Elevated Alignment Option	--	--	--
Federal Way City Center Station Options			
Federal Way I-5 Station Option	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	--	--
SR 99 Alternative	**--**	**--**	**McSorley Creek: <0.1 Redondo Creek: <0.1**
S 216th Station Options			
S 216th West Station Option	--	--	--
S 216th East Station Option	--	--	--
Kent/Des Moines Station Options			
Kent/Des Moines HC Campus Station Option	Massey Creek: +60	Massey Creek: +<0.1	Massey Creek: +<0.1
Kent/Des Moines SR 99 Median Station Option	--	--	--
Kent/Des Moines SR 99 East Station Option	--	--	--
S 260th Station Options			
S 260th West Station Option	McSorley Creek: +250	McSorley Creek: + <0.1	McSorley Creek: +0.1
S 260th Station East Option	McSorley Creek: +152	McSorley Creek: + <0.1	McSorley Creek: +0.1
S 272nd Redondo Trench Station Option	McSorley Creek: +148 Redondo Creek: +180	McSorley Creek: + <0.1 Redondo Creek: + <0.1	McSorley Creek: +<0.1 Redondo Creek: +0.1
Federal Way SR 99 Station Option	--	--	--
SR 99 to I-5 Alternative	**--**	**--**	**Bingaman Creek 1.0**
S 216th Station Options			
S 216th West Station Option	--	--	--
S 216th East Station Option	--	--	--
Landfill Median Alignment Option	--		
Federal Way City Center Station Options			
Federal Way I-5 Station Option	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	--	--

TABLE 4-6
Summary of Temporary Construction Impacts on Streams by FWLE Alternative and Option

Alternative	Stream Channel Impact Length (linear feet)[a]	Stream Impact Area (acres)[a]	Stream Buffer Impact (acres)[a]
I-5 to SR 99 Alternative	**--**	**--**	**McSorley Creek <0.1 Redondo Creek <0.1**
S 260th Station Options			
S 260th West Station Option	McSorley Creek: +250	McSorley Creek: + <0.1	McSorley Creek: +0.1
S 260th Station East Option	McSorley Creek: +152	McSorley Creek: + <0.1	McSorley Creek: +0.1
S 272nd Redondo Trench Station Option	McSorley Creek: +148 Redondo Creek: +180	McSorley Creek: + <0.1 Redondo Creek: + <0.1	McSorley Creek: +<0.1 Redondo Creek: +0.1
Federal Way SR 99 Station Option	--	--	--

[a] Work over Redondo Creek and McSorley Creek would require temporary piping of open stream segments to protect stream from temporary construction impacts.

Construction impacts on water resources would be minimized by implementing BMPs and conforming to conditions of the National Pollutant Discharge Elimination System (NPDES) Stormwater Construction permit that will be obtained for the project. Within the construction footprint, aquatic resources would potentially be at risk during construction based largely on the amount of ground-disturbing activity within each basin. Any earthwork conducted within or in close proximity to a stream channel without BMPs installed or being maintained has the potential to cause turbidity and sedimentation that would adversely affect fish and habitat downstream of the work. Increases in suspended sediment levels can reduce light penetration, inhibit primary production, abrade and clog fish gills, prevent feeding by sight feeders, stop migration, and cause any fish in the area to avoid the disturbed reaches of the river. Increased sedimentation can alter stream bed characteristics and habitat for invertebrates and fish. Streams in the study area are in an urbanized environment and connected to local stormwater systems. Existing stormwater systems without stormwater treatment degrade water quality in the streams from pollution runoff and sedimentation.

Removal of vegetation along the stream banks during construction would increase the erosion hazard for the stream bank and result in the temporary loss of potential LWD recruitment until vegetation becomes reestablished. Planting of native vegetation and the addition of LWD would improve stream habitat within the impacted areas after construction. For aquatic species and habitat, earthwork and project construction equipment could introduce sediment and contaminants (e.g., fuel or hydraulic fluids) to streams that could also be carried downstream of the project.

Under all alternatives, the potential for adverse impacts on aquatic species and habitat would be minimized by ensuring that work conditions and activities comply with the required project permits and by implementing BMPs designed to avoid or minimize the delivery of construction-related sediment and contaminants to streams. Impacts on water resources from construction would be minimized by implementing BMPs required by the NPDES General Stormwater Construction Permit.

4.2.2.2 Impacts by Alternative

This section describes the potential temporary construction-related impacts on aquatic resources for each of the FWLE alternatives. Impact areas for streams and stream buffers are summarized in Table 4-4.

Preferred Alternative

Construction activities for the Preferred Alternative would temporarily impact approximately 0.8 acre of Bingaman Creek stream buffer along with 1,015 feet of the existing stream channel. Although this length would be impacted during construction, it is considered a permanent impact and not quantified as a temporary impact in Table 4-6. Some work would occur below the OHWM of Bingaman Creek. Where possible, work would occur during the summer months when the creek channel is dry. It is unlikely that construction would be complete within a single seasonally dry period, in which case a temporary piped bypass would convey any flows in Bingaman Creek around the construction site and into the existing I-5 culvert to continue downstream. Bypassing the construction area would prevent introduction of sediments into the creek flow, avoiding effects on water quality downstream. Because the entire Bingaman Creek channel within or adjacent to the Preferred Alternative footprint would need to be modified to meander around the guideway columns, all impacts on the creek channel are considered long-term and are addressed in Section 4.2.1.2.

Riparian vegetation along Bingaman Creek would be cleared for site access to construct sections of the guideway. Short-term clearing may result in reduced shading and subsequent higher stream temperatures during the construction period. Removal of vegetation along the stream banks during construction would increase the erosion hazard for the stream bank and result in the temporary loss of potential LWD recruitment until vegetation becomes reestablished. North of S 288th Street, Sound Transit would try to preserve as much of the existing buffer as possible while constructing the stream realignment as well as the stormwater pond, emergency access road, and TPSS planned on this property.

SR 99 Alternative

Construction activities for the SR 99 Alternative would temporarily impact less than 0.1 acre of stream buffer and are not expected to temporarily impact streams unless the contractor chooses to use temporary culverts. In these cases, the length of the stream channel within the project footprint would be temporarily impacted during construction activities. The linear feet of stream channel impact numbers in Table 4-4 reflect this scenario for all stream crossings. The Kent/Des Moines HC Campus Station Option from S 216th West Station Option, Kent/Des Moines HC Campus Station Option, the S 260th Station options, and the S 272nd Redondo Trench Station Option would increase temporary impacts, but total impacts would remain under half an acre (Table 4-4).

SR 99 to I-5 Alternative

The portion of this alignment along I-5 would affect Bingaman Creek north and south of S 288th Street similar to the Preferred Alternative. Construction activities would affect 1.0 acre of the riparian buffer and a total of 1,015 feet of the existing stream channel. A temporary piped bypass would convey any flows in Bingaman Creek around the construction site and into the existing I-5 culvert. Riparian vegetation would be cleared for site access and guideway construction, resulting in reduced shading as

described above for the Preferred Alternative. The station options for this alternative would not change these impacts (Table 4-4).

I-5 to SR 99 Alternative

Construction activities for the I-5 to SR 99 Alternative would temporarily impact less than 0.1 acre of stream buffer and are not expected to temporarily impact streams unless the contractor chooses to use temporary culverts. The S 260th Station options and the S 272nd Redondo Trench Station Option would increase temporary impacts, but total impacts would remain under 1/2 acre (Table 4-4).

4.3 Upland Vegetation and Wildlife Resources

4.3.1 Long-Term Impacts

This section describes the long-term impacts from the FWLE on vegetation and wildlife resources in the study area. For this analysis, the amount of upland forest habitat impacted by each build alternative is used to indicate the potential for long-term adverse impacts on both vegetation and wildlife. Impacts on pervious vegetated areas outside upland forest are also quantified. These areas include managed vegetation and grassy areas that do not constitute wildlife habitat. Direct long-term impacts described in this section would occur where the light rail crosses land cover types that support vegetation or upland forested wildlife habitat features.

4.3.1.1 Impacts Common to All Alternatives

The impacts of project operation on vegetation and wildlife habitat would vary, depending on the land cover type within the project limits. The impacts on the medium density urban habitat in the study area, for example, would be minimal. Little or no vegetation is present in areas classified as urban; therefore, the replacement of existing impervious surface and man-made structures with guideways or other facilities would constitute a minimal change in the characteristics of such areas or their ability to support wildlife.

For this analysis, the vegetation clear zone that extends 11 feet beyond the footprint of the track is considered a long-term impact on forested vegetation and forested wildlife habitat because forest would not be allowed to regenerate in this area. The vegetation clear zone could retain native shrubs and groundcover, but not trees tall enough to fall onto the overhead catenary system lines or guideway. The surrounding grass and low-height vegetation along the alignment would provide some habitat for ground-dwelling small mammals, such as mice and voles. These species inhabiting open grassy areas provide foraging opportunities for raptors such as red-tailed hawks.

Removing trees, snags, and understory vegetation for the project would result in the loss of nesting and foraging sites for many species of birds, as well as reduced availability of hiding cover for small mammal, and roosting and forging sites for bats. The portions of the alternatives that would be at-grade or in a trench would result in long-term loss of all vegetation within the project footprint.

Potential impacts of alternatives that pass through forested areas would include habitat loss and disturbance to wildlife. All alternatives are near existing highways and urban developed areas and have lower habitat value than less disturbed, more rural areas. However, remnant patches of natural vegetation can provide refugia and/or corridors that connect larger undisturbed areas and are

important for animals and birds transiting through urban areas. Some remnant forest patches along I-5, particularly along Bingaman Creek and surrounding the McSorley Creek Wetland, potentially act as roosts and nest sites for birds, as well as provide habitat for small mammals and cover for larger animals that move between areas of greater habitat importance.

Where the rail structure is elevated, ground-dwelling animals would be able to pass underneath. In places where the guideway would be built at-grade or in a trench, impacts on vegetation and wildlife would be greater due to complete loss of vegetated groundcover. Any wildlife inhabiting these areas is already living near human disturbance, and project impacts on existing wildlife would consequently be low. The portions of track built at-grade or in a trench through areas of wildlife habitat would be fenced, thereby minimizing the risk of potential collisions with ground-dwelling animals. These fenced portions could however, have the potential to impede movements of animals. The FWLE corridor is highly urbanized and alongside existing roadways and consequently, the potential for further fragmentation of wildlife habitat is minimal to nil.

4.3.1.2 Impacts by Alternative

This section describes the long-term impacts on vegetation and wildlife resources from the FWLE alternatives. The acres of long-term impacts on vegetation were categorized based on the functional assessment described in section 3.3.2 and used to reflect the impacts on wildlife habitat. Impacts on Category A, B, C, and D upland forest habitat, as well as managed vegetation pervious areas, are presented in Table 4-7. Table 4-8 presents vegetation clear zone impacts by habitat category.

TABLE 4-7
Summary of Potential Long-Term Impacts on Vegetation and Wildlife Resources as Categorized by the Upland Habitat Assessment Model

Alternative	Habitat Category A Impacts (acres)	Habitat Category B Impacts (acres)	Habitat Category C Impacts (acres)	Habitat Category D Impacts (acres)	Total Habitat Impacts (acres)[a]
Preferred Alternative	**14.6**	**13.8**	**5.5**	**1.1**	**35.0**
Kent/Des Moines Station Options					
Kent/Des Moines At-Grade Station Option	--	+1.2	-0.6	+0.9	+1.5
Kent/Des Moines I-5 Station Option	--	+3.0	-0.7	+0.6	+2.9
Landfill Median Alignment Option	**--**	**-1.7**	**--**	**+0.6**	**-1.1**
S 272nd Star Lake Elevated Station Option	**+0.3**	--	**+0.3**	--	**+0.6**
S 317th Elevated Alignment Option	--	--	**--**	--	**--**
Federal Way City Center Station Options					
Federal Way I-5 Station Option	--	--	-0.3	--	-0.3
Federal Way S 320th Park-and-Ride Station Option	--	--	+0.4	--	+0.4
SR 99 Alternative	**0.3**	**0.1**	**1.1**	**1.4**	**2.9**
S 216th Station Options					
S 216th West Station Option	--	--	+0.5	--	+0.5
S 216th East Station Option	--	--	--	--	--

TABLE 4-7

Summary of Potential Long-Term Impacts on Vegetation and Wildlife Resources as Categorized by the Upland Habitat Assessment Model

Alternative	Habitat Category A Impacts (acres)	Habitat Category B Impacts (acres)	Habitat Category C Impacts (acres)	Habitat Category D Impacts (acres)	Total Habitat Impacts (acres)[a]
Kent/Des Moines Station Options					
Kent/Des Moines HC Campus Station Option	--	--	+0.2	-0.4	-0.2
S 216th West Station Option to KDM HC Campus Station Option	--	--	+0.6	-0.4	+0.2
Kent/Des Moines SR 99 Median Station Option	--	--	--	-0.9	-0.9
Kent/Des Moines SR 99 East Station Option	--	--	--	-1.0	-1.0
S 260th Station Options					
S 260th West Station Option	--	--	+0.5	--	+0.5
S 260th East Station Option	+0.2	--	--	--	+0.2
S 272nd Redondo Trench Station Option	**+1.3**	**+1.5**	**+1.1**	**--**	**+3.9**
Federal Way SR 99 Station Option	**--**	**--**	**--**	**--**	**--**
SR 99 to I-5 Alternative	**9.8**	**7.6**	**3.2**	**1.1**	**21.7**
S 216th Station Options					
S 216th West Station Option	--	--	+0.5	--	+0.5
S 216th East Station Option	--	--	--	--	--
Landfill Median Alignment Option	**--**	**-0.7**	**--**	**+0.7**	**--**
Federal Way City Center Station Options					
Federal Way I-5 Station Option	--	--	-0.1	--	-0.1
Federal Way S 320th Park-and-Ride Station Option	--	--	+0.6	--	+0.6
I-5 to SR 99 Alternative	**0.3**	**1.7**	**1.3**	**0.2**	**3.5**
S 260th Station Options					
S 260th West Station Option	--	--	+0.5	--	+0.5
S 260th East Station Option	+0.5	--	--	--	--
S 272nd Redondo Trench Station Option	**+1.3**	**+1.5**	**+1.1**	**--**	**+3.9**
Federal Way SR 99 Station Option	**--**	**--**	**--**	**--**	**--**

[a] Totals may vary from the sum of individual numbers due to rounding.

TABLE 4-8
Summary of Potential Vegetation Clear Zone Impacts on Vegetation and Wildlife Resources as Categorized by the Upland Habitat Assessment Model

Alternative	Habitat Category A Impacts (acres)	Habitat Category B Impacts (acres)	Habitat Category C Impacts (acres)	Habitat Category D Impacts (acres)	Total Vegetation Clear Zone Habitat Impacts (acres)[a]
Preferred Alternative	**1.9**	**1.6**	**0.7**	**0.2**	**4.5**
Kent/Des Moines Station Options					
Kent/Des Moines At-Grade Station Option	--	+0.3	--	--	+0.3
Kent/Des Moines I-5 Station Option	--	+0.3	--	+0.5	+0.8
Landfill Median Alignment Option	--	**+0.5**	--	**+0.3**	**+0.8**
S 272nd Star Lake Elevated Station Option	**-0.1**	**--**	**-0.2**	**--**	**-0.3**
S 317th Elevated Alignment Option	**--**	**--**	**--**	**--**	**--**
Federal Way City Center Station Options					
Federal Way I-5 Station Option	--	--	+0.2	--	+0.2
Federal Way S 320th Park-and-Ride Station Option	--	--	--	--	--
SR 99 Alternative	**--**	**<0.1**	**--**	**0.3**	**0.3**
S 216th Station Options					
S 216th West Station Option	--	--	+0.1	--	+0.1
S 216th East Station Option	--	--	--	--	--
Kent/Des Moines Station Options					
Kent/Des Moines HC Campus Station Option	--	--	+0.2	--	+0.2
S 216th West Station Option to KDM HC Campus Station Option	--	--	+0.3	--	+0.3
Kent/Des Moines SR 99 Median Station Option	--	--	--	--	--
Kent/Des Moines SR 99 East Station Option	--	--	--	--	--
S 260th Station Options					
S 260th West Station Option	--	--	+0.3	--	+0.3
S 260th East Station Option	+0.3	--	--	--	+0.3
S 272nd Redondo Trench Station Option	**+0.7**	**+0.7**	**+0.5**	**--**	**+1.9**
Federal Way SR 99 Station Option	**--**	**--**	**--**	**--**	**--**
SR 99 to I-5 Alternative	**2.8**	**2.6**	**0.4**	**0.6**	**6.4**
S 216th Station Options					
S 216th West Station Option	--	--	+0.1	--	+0.1
S 216th East Station Option	--	--	--	--	--
Landfill Median Alignment Option	**--**	**+0.5**	**--**	**+0.3**	**+0.8**
Federal Way City Center Station Options					
Federal Way I-5 Station Option	--	--	+0.2	--	+0.2
Federal Way S 320th Park-and-Ride Station Option	--	--	+0.3	--	+0.3
I-5 to SR 99 Alternative	**--**	**0.7**	**0.2**	**0.2**	**1.1**

TABLE 4-8
Summary of Potential Vegetation Clear Zone Impacts on Vegetation and Wildlife Resources as Categorized by the Upland Habitat Assessment Model

Alternative	Habitat Category A Impacts (acres)	Habitat Category B Impacts (acres)	Habitat Category C Impacts (acres)	Habitat Category D Impacts (acres)	Total Vegetation Clear Zone Habitat Impacts (acres)[a]
S 260th Station Options					
S 260th West Station Option	--	--	+0.3	--	+0.3
S 260th East Station Option	+0.3	--	--	--	+0.3
S 272nd Redondo Trench Station Option	**+0.7**	**+0.7**	**+0.5**	**--**	**+1.9**
Federal Way SR 99 Station Option	**--**	**--**	**--**	**--**	**--**

[a] Totals may vary from the sum of individual numbers due to rounding.

Preferred Alternative

Much of the Preferred Alternative would be constructed at-grade or in a trench, and therefore would result in long-term vegetation loss within the footprint of the project. All affected habitat areas for the Preferred Alternative would be immediately adjacent to I-5. Loss of trees along the west side of I-5 would reduce upland forested habitat by 35.0 acres. There are several patches of relatively high quality upland forest habitat along the corridor. The largest and highest ranked habitat is surrounding the McSorley Creek Wetland. Forested riparian area along Bingaman Creek also provides a relatively large habitat area within the I-5 corridor. The mature trees and shrubs provide roosting and potential nesting habitat for birds, as well as forest cover for small mammals. The Preferred Alternative would impact 14.6 acres of Category A habitat (Table 4-7). The vegetation clear zone would affect approximately 4.5 acres of forested cover, 1.9 acres of which is Category A habitat (Table 4-8).

The forested habitat in the Preferred Alternative footprint is bounded by roadways and residential development, but can provide refuge for animals transiting from the forested areas east of I-5 along Bingaman Creek if they pass through the culvert when the creek is dry (much of the year), or along the margins of S 288th Street that passes under I-5 and bisects the Bingaman Creek reach. Forested habitat north and south of the Military Road underpass includes long, narrow patches of upland forest habitat between developed areas to the west and I-5 to the east. This habitat contains mature forest canopy and a well developed shrub layer, but has less wildlife value than areas around McSorley Creek wetlands due to the narrow width and proximity of I-5.

Most of the Preferred Alternative station and alignment options would increase the impacts on various habitat categories. The Kent/Des Moines At-Grade Station Option would have the greatest increase in upland habitat impacts (Table 4-7).

SR 99 Alternative

The SR 99 Alternative would have 2.9 acres of long-term impacts on existing upland forest habitat. Of the SR 99 Alternative station options, the S 272nd Redondo Trench Station Option would have the most impacts from traversing forested areas on the west side of SR 99 in Federal Way in the vicinity of Redondo Creek. The Kent/Des Moines SR 99 East Station Option would have the least impact on upland forested vegetation and wildlife habitat, although this option would affect several forested

wetlands surrounding Massey Creek. None of the options would directly impact the McSorley Creek Biodiversity Area and Corridor mapped by WDFW west of SR 99. Therefore, the impact of this alternative on vegetation and wildlife habitat would be limited.

The vegetation clear zone would affect approximately 0.3 acre of forested cover, nearly all of which is Category D habitat. The S 272nd Redondo Trench Station Option would increase these impacts by 1.9 acre. The S 216th West Station Option, Kent/Des Moines HC Campus Station Option, Kent/Des Moines SR 99 Median Station Option, S 260th West Station Option, and S 260th East Station Option would increase these impacts from 0.1 to 0.3 acre.

SR 99 to I-5 Alternative

The SR 99 to I-5 Alternative would have 21.7 acres of long-term impacts on upland forested habitat. The impacts on wildlife would be the same as the SR 99 Alternative north of Kent-Des Moines Road and the same as the Preferred Alternative south of S 240th Street. There would be some vegetation lost between Kent-Des Moines Road and S 240th Street. The naturally vegetated areas in the I-5 corridor north of S 240th Street would be avoided. The vegetation clear zone would affect approximately 6.4 acres of forested cover. Impacts from station and alignment options for the SR 99 to I-5 Alternative would be the same as described above for the Preferred and SR 99 alternatives.

I-5 to SR 99 Alternative

The I-5 to SR 99 alternative would have 3.5 acres of long-term impacts on forested cover. The impacts on vegetation and wildlife habitat for this alternative would be similar to those described above for the SR 99 Alternative, with the exception of north of S 240th Street, it is located along the I-5 corridor. With this alternative there would not be the vegetation loss associated with the Preferred Alternative in the portion of the alignment south of S 240th Street. The I-5 to SR 99 vegetation clear zone would affect approximately 1.1 acres of forested cover. Impacts from station options for the I-5 to SR 99 Alternative would be the same as described above for the Preferred and SR 99 alternatives.

4.3.2 Construction Impacts

4.3.2.1 Impacts Common to All Alternatives

Vegetation and wildlife habitat would be temporarily impacted by clearing for temporary access roads, construction equipment storage areas, and other necessary construction activities.

Wildlife species near the project corridor could be impacted by construction noise, vibration, dust, dirt, light, and the clearing and grubbing of the landscape along the alignment. There would be a low risk of disturbance to wildlife from contractor access to construction sites, noise, and light during construction because the impacted areas currently have high noise levels from traffic and surrounding roads and urban areas. Clearing vegetation for project construction could potentially impact bird nesting sites and could result in the “take” of migratory bird nests and/or their eggs protected under the MBTA if the clearing were conducted during the breeding and nesting season. Vegetation clearing would also increase the risk of introducing or contributing to the spread of noxious or invasive weed species, although the risk would be low and minimized by replanting and by implementing BMPs during project construction to avoid, reduce, and control new infestations of noxious weeds. Vegetation losses due to construction outside the long-term footprints would be temporary, as construction would be followed

by site restoration and vegetation reestablishment. Vegetation plantings and restoration would only include native species.

After construction, vegetation would be replanted and would reestablish in areas surrounding the rail structure, although areas within the vegetation clear zone would be replanted with non-tree species of limited height to maintain proper clearance for guideways and tracks.

4.4 Threatened and Endangered Fish and Wildlife Species, Species of Concern, and WDFW Priority Species

Potential long-term impacts on threatened and endangered species (aquatic and terrestrial) include direct mortality, disturbance and displacement effects, and loss or degradation of habitat. Project effects that may potentially affect threatened and endangered species would most likely occur where habitat is affected by construction. No threatened and endangered species or their habitats are known to occur within the areas impacted by the FWLE. Sound Transit prepared a Biological Assessment to serve as the basis for consultation concerning the potential effects of the Preferred Alternative on ESA-listed species and critical habitat. Based on the analysis in that document, and on the implementation of proposed mitigation measures, FTA determined that construction of the FWLE Preferred Alternative may affect, but is not likely to adversely affect, yellow-billed cuckoo and streaked horned lark, and would have no effect on fish species, Oregon spotted frog, marbled murrelet, or any critical habitat. USFWS concurred with this determination in September 2016 (see Appendix I). The Biological Assessment includes a determination of “no adverse effect” on essential fish habitat protected under the Magnuson-Stevens Fishery Conservation and Management Act.

4.5 Indirect Impacts

Indirect impacts from the FWLE may result in long-term wetland degradation from stormwater discharges and alterations in wetland hydrology; however, stormwater detention and treatment activities would minimize long-term indirect impacts on wetlands.

For aquatic species and habitat, indirect impacts would be minimal because the surrounding areas are already heavily developed. The FWLE is not expected to interfere with future projects that may provide habitat improvements such as road projects that may improve fish passage, or projects that may enhance vegetated and wetland areas in the project corridor. The FWLE would be designed to ensure that it would not preclude future culvert replacement(s) by WSDOT to provide fish passage.

Long-term indirect impacts on vegetation, wildlife, and wildlife habitat may include disturbance due to increased human access or contributions to the spread of noxious or invasive plant species.

The FWLE is projected to be used for approximately 36,500 person-trips per day in 2035, reducing vehicular traffic on the roadways in the region by 160,000 vehicle miles traveled and 10,000 vehicle hours traveled. This would reduce greenhouse gas emissions, energy consumption, and contaminated stormwater runoff from roadways. The FWLE may contribute to existing market forces that can increase the potential for transit-oriented development. The experience of other U.S. communities has shown that, although light rail transit may not by itself create new development, with transit-

supporting plans and policies in place, it can influence where development would occur and the types of development that occur. The FWLE would provide mobility options that could help achieve higher land use densities, thereby encouraging reduction of land development area in ways that are consistent with regional and local plans and policies. Densities will increase without light rail; however, light rail will help achieve goals that encourage high-density, transit-oriented development. Development by others would be subject to review under applicable federal, state, and local regulations. This review would trigger the implementation of measures and practices aimed at avoiding or minimizing impacts on wetlands, aquatic species and habitat, vegetation, wildlife, and other natural resources.

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5.0 Potential Mitigation Measures

Sound Transit's policy [Executive Order No. 1, Establishing a Sustainability Initiative for Sound Transit (2007)] on ecosystem mitigation is to avoid impacts on environmentally sensitive resources as much as possible, and to provide adequate mitigation for unavoidable impacts to ensure no net loss of ecosystem function and acreage as a result of agency projects. The FWLE would mitigate impacts on ecosystems in accordance with the mitigation sequencing requirements established by the National Environmental Policy Act (NEPA), the Clean Water Act, and local critical areas ordinances.

According to NEPA (40 CFR 1508.20), the sequence of mitigation is as follows:

1) Avoiding the impact altogether by not taking a certain action or parts of an action
2) Minimizing impacts by limiting the degree or magnitude of the action and its implementation
3) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment
4) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action
5) Compensating for the impact by replacing or providing substitute resources or environments

Appendix F (Best Management Practices for Ecosystems Resources) identifies the typical regulatory requirements for avoidance and minimization of impacts on ecosystems resources during design and construction. Sound Transit may also take additional measures to avoid and minimize impacts on sensitive natural resources as needed.

To the extent that impacts cannot be avoided or minimized through BMPs, Sound Transit would implement the potential compensatory mitigation measures discussed in the following sections.

5.1 Wetland Resources Potential Compensatory Mitigation Measures

For long-term impacts on wetlands and wetland buffers that could not be avoided, Sound Transit would replace wetland area and function through compensatory mitigation. Compensatory mitigation would be conducted during the permitting phase in accordance with applicable federal, state, and local requirements and guidelines. These include the federal Final Compensatory Mitigation Rule (40 CFR Part 230); interagency guidance (*Wetland Mitigation in Washington State*; Ecology et al., 2006); and local critical areas ordinances for the cities of Kent and Federal Way (as appropriate to the Preferred Alternative). Sound Transit plans to use the King County in-lieu fee program to mitigate long-term impacts on wetlands and wetland buffers. However, Sound Transit could also use the other methods listed below if available.

5.1.1 Approved Mitigation Bank

Currently, there are no approved mitigation banks with service areas that include the subbasins in which wetland impacts would occur from the project. Mitigation banking accreditation takes considerable lead time for planning and approval, so it is unlikely that a mitigation bank could become certified to serve the project.

5.1.2 King County In-Lieu Fee Program (Mitigation Reserves Program)

King County has developed an in-lieu fee program called the Mitigation Reserves Program, which was approved by USACE in March 2012 (King County, 2015). The program includes service areas within the watersheds affected by the FWLE (i.e., Green River and Central Puget Sound) that are in King County. The City of Kent and City of Federal Way updated critical areas ordinances allow for compensatory mitigation to be provided through a certified in-lieu fee program.

5.1.3 Project-Specific Mitigation Developed by Sound Transit

Sound Transit might be required to mitigate for unavoidable impacts through permittee-responsible, project-specific mitigation in accordance with the mitigation ratios specified by the cities of Kent and Federal Way and in accordance with the procedures outlined by Ecology and USACE for selecting mitigation sites using a watershed approach (Hruby et al., 2009).

As shown on Tables 5-1, 5-2, and 5-3, the *Wetland Mitigation in Washington State* guidance (Ecology et al., 2006) and cities of Kent and Federal Way codes require that wetland mitigation be completed at specific replacement ratios relative to the category of the wetland affected and the type of mitigation proposed (i.e., wetland creation, restoration, enhancement, or preservation). To determine the appropriate mitigation ratios for this project, the project team may propose adjustments to these guidelines to consider unique project circumstances.

TABLE 5-1
Recommended Wetland Mitigation Ratios for Projects in Western Washington

Category of Wetland Impacts[a]	Reestablishment or Creation	Rehabilitation Only	Reestablishment or Creation (R/C) and Rehabilitation (RH)	Reestablishment or Creation (R/C) and Enhancement (E)	Enhancement Only
II	3:1	6:1	1:1 R/C and 4:1 RH	1:1 R/C and 8:1 E	12:1
III	2:1	4:1	1:1 R/C and 2:1 RH	1:1 R/C and 4:1 E	8:1
IV	1.5:1	3:1	1:1 R/C and 1:1 RH	1:1 R/C and 2:1 E	6:1

[a] Category 1 wetlands are not present in the vicinity of the Preferred Alternative.
Source: Ecology et al. (2006).

TABLE 5-2
City of Kent Wetland Mitigation Ratios

Category and Type of Wetland Impacts	Reestablishment or Creation	Reestablishment or Creation (RIC) and Enhancement (E)
Category II	3:1	1:1 RIC and 4:1 E
Category III	2:1	1:1 RIC and 2:1 E
Category IV	1.5:1	1:1 RIC and 1:1 E

Source: Kent City Code 11.06.660.

TABLE 5-3
City of Federal Way Wetland Mitigation Ratios

Category and Type of Wetland Impacts	Reestablishment or Creation	Rehabilitation	Enhancement
Category II	3:1	6:1	12:1
Category III	2:1	4:1	8:1
Category IV	1.5:1	3:1	6:1

Source: City of Federal Way Revised Code 19.145.430.

Sound Transit anticipates using Ecology's credit/debit tool, in conjunction with the local jurisdiction's mitigation site selection and critical area mitigation ratio requirements, to determine the appropriate location, amount, and types of compensatory mitigation to compensate for the specific type and degree of functions affected by the FWLE (Hruby, 2012). The credit/debit tool considers mitigation site selection relative to consistency with a basin plan and the potential for temporal loss of wetland function due to the timing of the mitigation compared with the impact.

Compensatory mitigation would be provided for construction impacts lasting more than one growing season, and for permanent conversion of wetlands from one vegetation type to another (e.g., forested wetland to emergent or scrub-shrub wetland). Generally, compensation for long-term temporary impacts is 1/4 of the typical ratio for long-term permanent impacts and 1/2 for conversion of wetlands. Impacts on buffers would generally be replaced at a minimum ratio of 1:1 using buffer enhancement.

Opportunities for wetland mitigation may occur in the study area and within the greater project vicinity. In cooperation with resource agencies, Sound Transit would develop plans to mitigate the effects of the project on wetlands and buffers. Site selection would emphasize a watershed approach. To the extent possible, compensatory mitigation sites would be identified and compensate for lost values in-kind. It may be necessary to use several sites and mitigation approaches given the project size, the variety of impacts, complexity of identifying mitigation opportunities, and mitigation requirements.

Potential project-specific mitigation sites would be selected according to the federal Final Compensatory Mitigation Rule (40 CFR Part 230) and joint guidance developed by Ecology, USACE, and USEPA (Hruby et al., 2009), which discuss the implementation of a watershed approach to selecting mitigation sites. This approach allows for a greater degree of flexibility in selecting mitigation sites and potentially greater value created for the watershed than the previous regulatory focus on onsite mitigation. Potential sites currently under consideration for project-specific mitigation for impacts on wetlands and wetland buffers are described below.

Publicly owned portions of the McSorley Creek Wetland may provide opportunities for mitigation through wetland enhancement; however, the extent of potentially available enhancement is limited because most degraded wetland areas have already been planted with native vegetation as part of earlier enhancement projects. Wetland creation or reestablishment could be implemented by removing fill material along the perimeter of the wetland to match elevations of undisturbed adjoining

wetland, thus reestablishing wetland acreage and function. Several private properties around the perimeter of McSorley Creek Wetland could provide this opportunity.

5.2 Aquatic Resources Potential Compensatory Mitigation Measures

Sound Transit would design and construct permanent stormwater treatment facilities and flow-control measures to minimize impacts on stream water quality and flow. Existing stream channels and culverts would be largely avoided by the project alternatives with the exception of Bingaman Creek and the Hylebos Creek culvert at the Federal Way S 320th Park-and-Ride Station Option. The Preferred Alternative would be elevated over Bingaman Creek, but the channel would be realigned around the columns to minimize impacts on the creek and to not preclude replacement of the I-5 and S 288th Street culverts by WSDOT. Some unavoidable impacts on stream riparian areas would be mitigated by improving stream habitat and riparian function by replanting affected areas with native shrub species. Mitigation for impacts on Bingaman Creek will be approved by the appropriate permitting agencies and jurisdictions prior to construction. Sound Transit would coordinate closely with WSDOT, WDFW, and the Muckleshoot Indian Tribe on the Hylebos culvert during final design if the S 320th Park-and-Ride station option were selected as part of the project to be built.

5.3 Upland Vegetation and Wildlife Resources Potential Compensatory Mitigation Measures

Project impacts on vegetation, wildlife, and wildlife habitat would be avoided and minimized to the extent practicable by minimizing the footprint of light rail alignments through large blocks of forests and connected riparian corridors, and by siting the alignment close to the edge of these habitats to the extent feasible in order to minimize loss of habitat connectivity. Measures would be implemented before and during project construction to avoid or minimize impacts on upland vegetation and wildlife resources. Examples of these strategies are minimizing vegetation clearing, restoring temporarily impacted areas, and preparing and implementing a revegetation plan.

Sound Transit would mitigate for impacts on forested vegetation using applicable state and local policies and regulations. Tree removal within the I-5 corridor would be mitigated according to the WSDOT *Roadside Policy Manual* (WSDOT, 2015). Tree removal outside of WSDOT right-of-way would be mitigated to comply with local jurisdictions' tree replacement requirements.

Roadside Policy Manual

Sound Transit must restore or replace impacted vegetation in the highway right-of-way in accordance with the WSDOT *Roadside Policy Manual* (WSDOT, 2015). Specific types, amounts, and locations for replanting are identified in consultation with WSDOT and through development of a roadside master plan.

Clearing vegetation for project construction could affect bird nesting sites. To comply with the MBTA, Sound Transit would establish schedule restrictions for clearing activities. Clearing would occur outside the active bird nesting period, to the extent possible. If avoidance scheduling is infeasible, Sound Transit would work with staff at the U.S. Department of Agriculture to conduct preconstruction surveys to determine the presence or absence of nesting migratory birds in the corridor and assist Sound Transit in complying with the MBTA.

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Appendix A

Wetland Delineation Methodology

Appendix A

Wetland Delineation Methodology

Wetlands are areas saturated or inundated by surface water or groundwater at a frequency and duration sufficient to support, and which under normal circumstances do support, a prevalence of vegetation adapted for life in saturated soil conditions. The methods used to delineate the onsite wetlands conform to methods described in the *Washington State Wetlands Identification and Delineation Manual* (Washington State Department of Ecology [Ecology], 1997), the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (USACE, 1987), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE, 2010). To be considered a wetland, an area must have hydrophytic vegetation, hydric soils, and wetland hydrology. Sound Transit collected data on these parameters in areas representative of typical site conditions. Staff collected additional data in associated uplands, as needed, to confirm wetland and stream boundaries. Wetland boundaries and wetland data plot locations in the study area were marked with sequentially numbered flagging. All delineated wetlands were instrument-surveyed and mapped on project base maps.

A.1 Vegetation

The dominant plants and their wetland indicator status were evaluated to determine if the vegetation was hydrophytic. To determine which plants were dominant at a sample plot, biologists applied the 50/20 rule per USACE recommendations. Under this guidance, absolute cover estimates were made for each species found rooted within the sample plot, for each vegetative stratum found in the habitat (tree, sapling/shrub, herb, and woody vine). The species that had the most cover was included along with the next species until the absolute cover of these totaled more than 50 percent of the total absolute cover. Any other species that represented at least 20 percent of the total absolute cover was also included as a dominant species for that vegetative stratum.

Sample plots varied in size depending on site topography and habitat complexity. The objective of establishing a plot was to depict particular plant associations that reflect specific water regimes or other ecological factors. For example, on steep-sided riparian areas a plot may consist of a narrow strip along the water's edge, and within a floodplain a plot may be a 30-foot circle.

Hydrophytic vegetation is defined as vegetation adapted to wetland conditions. To meet the hydrophytic vegetation criterion, more than 50 percent of the dominant plants in each stratum must be Facultative, Facultative Wetland, or Obligate, based on the wetland indicator category assigned to each plant species by the USACE (USACE, 2014). Table A-1 lists the definitions of the indicator categories.

TABLE A-1
Definitions of Wetland Plant Indicator Categories to Determine the Presence of Hydrophytic Vegetation

Wetland Indicator Category	Symbol	Definition
Obligate Wetland Plants	OBL	Plants that almost always (>99% of the time) occur in wetlands, but which may rarely (<1% of the time) occur in non-wetlands.
Facultative Wetland Plants	FACW	Plants that often (67 to 99% of the time) occur in wetlands, but sometimes (1 to 33% of the time) occur in non-wetlands.
Facultative Plants	FAC	Plants with a similar likelihood (34 to 66% of the time) of occurring in both wetlands and non-wetlands.
Facultative Upland Plants	FACU	Plants that sometimes (1 to 33% of the time) occur in wetlands, but occur more often (67 to 99% of the time) in non-wetlands.
Upland Plants	UPL	Plants that rarely (<1% of the time) occur in wetlands, and almost always (>99% of the time) occur in non-wetlands.

Source: Lichvar et al. (2012).

Sound Transit identified plants to the species level in the field and estimated percent cover of dominant plants. Scientific and common plant names follow currently accepted nomenclature. Most names are consistent with *Flora of the Pacific Northwest* (Hitchcock and Cronquist, 1973) and the PLANTS Database (U.S. Department of Agriculture Natural Resources Conservation Service [NRCS], 2013). During the field investigation, staff observed and recorded the dominant plant species on data sheets (Appendix B) for each data plot.

A.2 Soils

Generally, an area must contain hydric soils to be a wetland. Hydric soil forms when soils are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper 12 inches. Biological activities in saturated soil result in reduced oxygen concentrations and organisms turn to anaerobic processes for metabolism. Over time, anaerobic biological processes result in certain soil color patterns, which are used as indicators of hydric soil. Typically, low-chroma colors are formed in the soil matrix, and bright-colored redoximorphic features form within the matrix. Other important hydric soil indicators include organic matter accumulations in the surface horizon, reduced sulfur odors, and organic matter staining in the subsurface (NRCS, 2010).

Sound Transit examined soils by excavating sample pits to a depth of 20 inches to observe soil profiles, colors, and textures. In some cases, a shallower soil pit was adequate to document hydric soil indicators. Munsell color charts (Munsell Color Company, 2009) were used to describe soil colors.

A.3 Hydrology

Project staff examined the potential wetland areas for evidence of hydrology. Wetland hydrology criteria were considered satisfied if it appeared that the soil was seasonally inundated or saturated to the surface for a consecutive number of days greater than or equal to 12.5 percent of the growing season. The growing season for the area was determined based on the period in which temperatures are above 28 degrees Fahrenheit for 5 out of 10 years (Ecology, 1997) using the long-term climatological data collected by the NRCS (2014). Using the NRCS (2002) WETS table for the nearest

station (Sea-Tac Airport, Washington), the growing season was approximated to be typically between February 6 and December 9, or a total of 305 days.

Wetland hydrology indicators are divided into two categories, primary and secondary indicators (USACE, 2010). Primary indicators of hydrology include surface inundation, high water table, and saturated soils. The presence of one primary indicator is sufficient to conclude that wetland hydrology is present. In the absence of a primary indicator, observation of two or more secondary indicators is required to conclude that wetland hydrology is present. Secondary indicators of hydrology include drainage patterns, water-stained leaves, and geomorphic setting (USACE, 2010).

A.4 References

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Appendix B

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 3/11/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 05-1-1

Investigators: Lisa Danielski Dangelei Fox Section, Township, Range S S 28 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope(%) <1%

Subregion (LRR): A Lat: 47.403173 Long: -122.293134 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6-15 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:
Upland sample plot located north of Wetland 5-1. Record rainfall during previous month (6.5 inches in February and over 3 inches in the week prior to wetland delineation) resulted in wetland hydrology indicators; however, vegetation and soils do not meet criteria.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Acer macrophyllum	50	Y	FACU
	50	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Symphoricarpos albus	2	Y	FACU
	2	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Ilex Aquifolium	1	N	
	1	=Total Cover	

% Bare Ground in Herb Stratum

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: 0.0% (A/B)

Prevalence Index Worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	62	x 4 =	248
UPL species	0	x 5 =	0
Column Totals:	62 (A)		248 (B)

Prevalence Index = B/A= 4.00

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

This sample does not meet any vegetative indicators.

SOIL

Sampling Point: SP 05-1-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 13	7.5YR 3 / 2	100					Gravely Sandy Loam	
13 to 19	10YR 3 / 4	100					Gravely Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:
This sample does not meet any hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches):	_____	
Water Table Present?	Yes X	No _____	Depth (inches):	11"	
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches):	8"	

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology meets indicators for high water table (A2) and saturation (A3). However, because of abnormally high precip, this is not considered a wetland.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 3/11/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 05-1-2

Investigators: Lisa Danielski Dangelei Fox Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope(%) <1

Subregion (LRR): A Lat: 47.403233 Long: -122.293178 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a 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 X	No ____		

Remarks:
This plot does not meet all wetland indicators. Record rainfall during previous month (6.5 inches in February and over 3 inches in the week prior to wetland delineation). Verification plot in area identified during desktop inventory as Wetland 5-2.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Populus balsamifera	50	Y	FAC
	50	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Symphoricarpos albus	65	Y	FACU
Cornus sericea	15	N	FACW
	80	=Total Cover	
Herb Stratum			
Vine Stratum			

% Bare Ground in Herb Stratum

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: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	50	x 3 =	150
FACU species	65	x 4 =	260
UPL species	0	x 5 =	0
Column Totals:	130 (A)		440 (B)

Prevalence Index = B/A= 3.38

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ____ No X**

Remarks: (Include photo numbers here or on a separate sheet.)

This sample does not meet any vegetative indicators.

SOIL

Sampling Point: SP 05-1-2

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
0 to 11	10YR 2 / 2	100	None				Gravely Sandy Loam	
11 to 18	7.5YR 3 / 4	100	None				Gravely Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes ____ No X

Remarks:
This sample does not meet any hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):		
Water Table Present?	Yes X	No ____	Depth (inches):	0	
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches):	0	

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology meets indicators for high water table (A2) and saturation (A3). Note there was record antecedent rainfall

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 3/11/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 05-1-3

Investigators: Lisa Danielski Dangelei Fox Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.403158 Long: -122.293184 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification: PSS1 / PFO1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
This plot meets the criteria for a wetland. Sample plot located in Wetland 5-1. Record rainfall during previous month (6.5 inches in February and over 3 inches in the week prior to wetland delineation).

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Populus balsamifera	55	Y	FAC
	55	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Cornus alba	60	Y	FACW
	5	N	
	65	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	10	Y	FACU
	10	=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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	55	x 3 =	165
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	125 (A)		325 (B)

Prevalence Index = B/A= 2.60

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets the dominance test for hydrophytic vegetation.

SOIL

Sampling Point: SP 05-1-3

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 to 7	10YR 2 / 1	100	none				FINE SANDY LOAM	
7 to 16	10YR 2.5 / 2	85	7.5YR 4/6	15	C	M	FINE SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
This area meets hydric soil indicator for depleted matrix (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):		
Water Table Present?	Yes X	No	Depth (inches):	7"	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	5"	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology meets indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 3/26/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 05-1E-1

Investigators: Lisa Danielski Brendan Baughn Section, Township, Range S 9 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Toe of Slope Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.402896 Long: -122.293134 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification: PEM1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
Record rainfall during previous month (6.5 inches in February and over 3 inches in the week prior to wetland delineation) Edge of wetland 5-1. This plot meets the criteria for a wetland.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 5 Ft)			
Rumex obtusifolius	5	Y	FAC
Veronica americana	5	Y	OBL
	10	=Total Cover	
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	25	Y	FACU
	25	=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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	35 (A)		120 (B)

Prevalence Index = B/A= 3.43

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- ____ Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

This sample plot meets dominance test

SOIL

Sampling Point: SP 05-1E-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 to 8	10YR 2 / 2	100	None				Gravely Sandy Loam	
8 to 15	10YR 2 / 4.5	90	7.5YR 4/6	10	C	M	FINE SANDY LOAM	
15 to 18	10YR 4 / 3	90	7.5YR 4/6	10	C	M	FINE SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
Soils do not technically meet hydric soil criteria; no redoximorphic features observed in upper 8", likely since soils were saturated. Presence of wetland hydrology and hydrophytic vegetation indicate hydric soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes		No	X	Depth (inches):
Water Table Present?	Yes	X	No		Depth (inches): 5
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches): 3

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology meets indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: SeaTac Sampling Date: 3/26/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 05-1E-2

Investigators: Lisa Danielski Brendan Baughn Section, Township, Range S 9 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.402860 Long: -122.293109 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:
Record rainfall during previous month (6.5 inches in February and over 3 inches in the week prior to wetland delineation). This plot does not meet all wetland indicators. Upland sample plot south of Wetland 5-1.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 5 Ft)			
Taraxacum officinale	1	Y	FACU
	1	=Total Cover	
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	50	Y	FACU
	50	=Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	51	x 4 =	204
UPL species	0	x 5 =	0
Column Totals:	51 (A)		204 (B)

Prevalence Index = B/A= 4.00

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

This sample does not meet any vegetative indicators.

SOIL

Sampling Point: SP 05-1E-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
0 to 7	10YR 3 / 2	100	None				FINE SANDY LOAM	
7 to 15	2.5Y 4 / 2	99	10YR 5/8	1	C	M	Very Gravely Sandly Loam	Compacted layer

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: Gravel

Depth (inches): 15"

Hydric Soil Present? Yes ____ No X

Remarks:
This sample does not meet any hydric soil indicators. Shovel refusal at 15".

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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:
This sample does not meet any hydrology indicators.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 3/11/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 06-2-1

Investigators: Lisa Danielski Dangelei Fox Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.394813 Long: -122.297269 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification: PSS1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
Record rainfall during previous month (6.5 inches in February and over 3 inches in the week prior to wetland delineation) This site meets the criteria for a wetland. Sample plot located in Wetland 6-2.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	5	Y	FAC
	5	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	60	Y	FACU
Hedera helix	5	N	FACU
	65	=Total Cover	

% Bare Ground in Herb Stratum

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: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	65	x 4 =	260
UPL species	0	x 5 =	0
Column Totals:	70 (A)		275 (B)

Prevalence Index = B/A= 3.93

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Himalayan blackberry is acting as an aggressive invasive. Presence of hydric soils and hydrology indicate hydrophytic vegetation.

SOIL

Sampling Point: SP 06-2-1

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 to 13	10YR 2 / 2	100					FINE SANDY LOAM	
13 to 17	10YR 5 / 2	95	10YR 3/4	5	C	M	LOAMY SAND	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
This area meets hydric soil indicator with a Sandy Redox (S5).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):		
Water Table Present?	Yes X	No	Depth (inches):	5"	
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 hydrology meets indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 3/11/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 06-2-2

Investigators: Lisa Danielski Dangelei Fox Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.394837 Long: -122.297177 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Record rainfall during previous month (6.5 inches in February and over 3 inches in the week prior to wetland delineation). This site does not meet the criteria to be classified as a wetland. Paired upland plot for Wetland 6-2.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	40	Y	FAC
	40	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Polygonum cuspidatum	45	Y	FACU
	45	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	45	Y	FACU
	45	=Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index Worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	130 (A)		480 (B)

Prevalence Index = B/A= 3.69

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

This sample does not meet any vegetative indicators.

SOIL

Sampling Point: SP 06-2-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 18	10YR 3 / 3	100	None				LOAMY SAND	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes ____ No X

Remarks:
This sample does not meet any hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	____	No	X	Depth (inches):
Water Table Present?	Yes	X	No	____	Depth (inches): 17"
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:
This sample does not meet any hydrology indicators. Water table is too deep for early part of growing season and record antecedent rainfall

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 3/11/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 06-3-1

Investigators: Lisa Danielski Dangelei Fox Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.394419 Long: -122.297155 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Record rainfall during previous month (6.5 inches in February and over 3 inches in the week prior to wetland delineation). This site does not meet the criteria to be classified as a wetland. Paired upland plot for Wetland 6-3.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	25	Y	FAC
	25	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	85	Y	FAC
Ilex aquifolium L.	5	N	
	90	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	5	Y	FACU
	5	=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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	110	x 3 =	330
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	115 (A)		350 (B)

Prevalence Index = B/A= 3.04

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

X Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets the dominance test for hydrophytic vegetation.

SOIL

Sampling Point: SP 06-3-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 18	10YR 3 / 3	100	None				FINE SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes ____ No X

Remarks:
This sample does not meet any hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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:
This sample does not meet any hydrology indicators.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 3/11/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 06-3-2

Investigators: Lisa Danielski Dangelei Fox Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.394430 Long: -122.297119 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification: PSS1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
Record rainfall during previous month (6.5 inches in February and over 3 inches in the week prior to wetland delineation) This site meets the criteria for a wetland. Sample plot in Wetland 6-3.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	80	Y	FAC
	80	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	10	Y	FACU
	10	=Total Cover	

% Bare Ground in Herb Stratum

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: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	80	x 3 =	240
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	90 (A)		280 (B)

Prevalence Index = B/A= 3.11

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Himalayan blackberry is aggressive invasive in the sample plot.

SOIL

Sampling Point: SP 06-3-2

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
0 to 14	10YR 2 / 1	100	None				Silty loam	
14 to 17	10YR 2 / 1	100	None				SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
Problematic soils. Too saturated to meet criteria requiring redoximorphic features. Hydric soils assumed based on presence of wetland hydrology/hydrophytic vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):	--	
Water Table Present?	Yes X	No	Depth (inches):	Surface	
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 hydrology meets indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Kent Sampling Date: 3/26/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 06-3-3

Investigators: Lisa Danielski Brendan Baughn Section, Township, Range S 16 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.394415 Long: -122.296996 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification: PFO1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
Record rainfall during previous month (6.5 inches in February and over 3 inches in the week prior to wetland delineation). This plot meets the criteria for a wetland. Sample Plot located in Wetland 6-3.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	65	Y	FAC
Populus balsamifera	25	Y	FAC
	90	=Total Cover	
Shrub Stratum			
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	50	Y	FACU
	50	=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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	90	x 3 =	270
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	140 (A)		470 (B)

Prevalence Index = B/A= 3.36

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- ____ Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets the dominance test for hydrophytic vegetation.

SOIL

Sampling Point: SP 06-3-3

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 to 6	10YR 3 / 2	100	None				SANDY LOAM	
6 to 12	10YR 4 / 2	85	7.5YR 4/6	15	C	M	SANDY LOAM	
12 to 16	2.5YR 5 / 2	100					Gravely Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
This sample does not meet any hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):	---	
Water Table Present?	Yes X	No	Depth (inches):	14	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	10	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Meets A2 and A3

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Kent Sampling Date: 3/26/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 06-3-4

Investigators: Lisa Danielski Brendan Baughn Section, Township, Range S 16 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Toe of Slope Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.394445 Long: -122.296989 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	
Hydric Soil Present?	Yes	X	No		**Is the Sampled Area within a Wetland?**
Wetland Hydrology Present?	Yes		No	X	**Yes** **No** **X**

Remarks:
Record precipitation in region. This plot does not meet all wetland indicators. Paired upland plot for Wetland 6-3.

VEGETATION– Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	10	Y	FAC
	10	=Total Cover	
Shrub Stratum			
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	65	Y	FACU
	65	=Total Cover	

% Bare Ground in Herb Stratum

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: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	65	x 4 =	260
UPL species	0	x 5 =	0
Column Totals:	75 (A)		290 (B)

Prevalence Index = B/A= 3.87

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

This sample plot does not meet dominance or prevalence tests.

SOIL

Sampling Point: SP 06-3-4

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 to 2	10YR 3 / 2	100					Gravely Sandy Loam	
2 to 5	10YR 4 / 2	98	2.5YR 4/6	2	C	M	Gravely Sandy Loam	
5 to 11	10YR 4 / 2	95	2.5YR 4/6	5	C	M	LOAMY SAND	
11 to 16	10YR 4 / 3	2	7.5YR 4/6	20	C	M	Gravely sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:
This area meets hydric soil indicator for depleted matrix (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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? Yes _____ No X Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
This sample does not meet any hydrology indicators.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 3/12/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 06-4-1

Investigators: Lisa Danielski Dangelei Fox Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): Convex Slope(%)

Subregion (LRR): A Lat: 47.394205 Long: -122.297340 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification: PFO1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
Record precipitation in region. Area meets criteria for wetland indicators. Edge of Wetland 6-4.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	45	Y	FAC
	45	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Oemleria cerasiformis	5	Y	FACW
	5	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Hedera helix	2	Y	FACU
	2	=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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	45	x 3 =	135
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	52 (A)		153 (B)

Prevalence Index = B/A= 2.94

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- X Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes No X**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets dominance and prevalence test.

SOIL

Sampling Point: SP 06-4-1

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 to 8	10YR 2 / 2	100	None				FINE SANDY LOAM	
8 to 22	10YR 3 / 1	60	2.5Y 4/3	20	C	M	Gravely sandy loam	
11 to 22	/		2.5Y 5/6	20	C	M	Gravely Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:
Meets redox dark surface indicator

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches):	_____	
Water Table Present?	Yes X	No _____	Depth (inches):	10"	
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches):	2"	

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology meets indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 3/11/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 06-4-2

Investigators: Lisa Danielski Dangelei Fox Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.394177 Long: -122.297307 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Record rainfall during previous month (6.5 inches in February and over 3 inches in the week prior to wetland delineation). Area does not meet criteria for wetland indicators. Paired upland plot for Wetland 6-4.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	80	Y	FAC
	80	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Oemleria cerasiformis	10	Y	FACU
Rubus spectabilis	10	Y	FAC
	20	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	10	Y	FACU
	10	=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: 50.0% (A/B)

Prevalence Index Worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	90	x 3 =	270
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	110 (A)		350 (B)

Prevalence Index = B/A= 3.18

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

This sample does not meet any vegetative indicators.

SOIL

Sampling Point: SP 06-4-2

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
0 to 5	10YR 3 / 2	100	None				FINE SANDY LOAM	
5 to 10	10YR 3 / 3	93	10YR 3/6	7	C	M	Gravely Sandy Loam	
10 to 18	10YR 4 / 4	100	None				Very Gravely sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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: FWLE / I-5 City/County: Bellevue Sampling Date: 3/11/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 06-5-1

Investigators: Lisa Danielski Dangelei Fox Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): Convex Slope(%)

Subregion (LRR): A Lat: 47.393882 Long: -122.298389 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
Record rainfall during previous month (6.5 inches in February and over 3 inches in the week prior to wetland delineation). This plot meets wetland indicators. Plot located in Wetland 6-5 (merged with Wetland 6-4).

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	20	Y	FAC
	20	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Hedera helix	85	Y	FACU
Rubus armeniacus	2	N	FACU
	87	=Total Cover	

% Bare Ground in Herb Stratum

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: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	87	x 4 =	348
UPL species	0	x 5 =	0
Column Totals:	107 (A)		408 (B)

Prevalence Index = B/A= 3.81

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes No X**

Remarks: (Include photo numbers here or on a separate sheet.)

H.helix is acting as an aggressive invasive plant causing problematic vegetation. Vegetation does not meet dominance or prevalence test, however is considered hydrophytic because hydric soil and hydrology are present.

SOIL

Sampling Point: SP 06-5-1

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 to 8	10YR 2 / 2	100					FINE SANDY LOAM	
8 to 16	2.5Y 4 / 2	85	10YR 4/6	15	C	M	Very gravelly loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
This area meets hydric soil indicator with a Sandy Redox (S5).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes X	No	Depth (inches):	11	
Water Table Present?	Yes X	No	Depth (inches):	surface	
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 hydrology meets indicators for high water table (A2) and surface water (A1), and saturation

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 3/11/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 06-5-2

Investigators: Lisa Danielski Dangelei Fox Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): Convex Slope(%)

Subregion (LRR): A Lat: 47.393876 Long: -122.298246 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a 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:
Area does not meet wetland indicators. Record rainfall during previous month (6.5 inches in February and over 3 inches in the week prior to wetland delineation). Paired upland plot for Wetland 6-5 (merged with Wetland 6-4).

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	40	Y	FAC
	40	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Hedera helix	55	Y	FACU
Ilex aquifulium	5	N	FACU
	60	=Total Cover	

% Bare Ground in Herb Stratum

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: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	100 (A)		360 (B)

Prevalence Index = B/A= 3.60

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks: (Include photo numbers here or on a separate sheet.)

This sample does not meet any vegetative indicators.

SOIL

Sampling Point: SP 06-5-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 19	10YR 2 / 2	100	None				FINE SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes ____ No X

Remarks:
This sample does not meet any hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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:
Moist, but not saturated. This sample does not meet any hydrology indicators.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 3/12/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 06-5-3

Investigators: Lisa Danielski Dangelei Fox Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): Convex Slope(%)

Subregion (LRR): A Lat: 47.393966 Long: -122.297438 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Record precipitation in region. This site does not meet the criteria to be classified as a wetland and is an upland plot. Paired upland plot for Wetland 6-5 (merged with 6-4)

VEGETATION– Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	10	Y	FAC
	10	=Total Cover	
Shrub Stratum			
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	80	Y	FACU
	80	=Total Cover	

% Bare Ground in Herb Stratum

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: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	80	x 4 =	320
UPL species	0	x 5 =	0
Column Totals:	90 (A)		350 (B)

Prevalence Index = B/A= 3.89

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

This sample does not meet any vegetative indicators.

SOIL

Sampling Point: SP 06-5-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 17	10YR 4 / 3	100	None				Gravelly Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: Rock

Depth (inches): 17"

Hydric Soil Present? Yes ____ No X

Remarks:

Hit an impassable rock at 17". This sample does not meet any hydric soil indicators; soil chroma of 3 is too bright to meet any criteria for hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	____	No	X	Depth (inches): --
Water Table Present?	Yes	X	No	____	Depth (inches): 15
Saturation Present? (includes capillary fringe)	Yes	X	No	____	Depth (inches): 14

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This sample does not meet any hydrology indicators. Saturation/water table too deep after heavy rainfall to meet primary hydrologic indicators.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 3/11/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 06-5-4

Investigators: Lisa Danielski Dangelei Fox Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.393963 Long: -122.297440 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification: PFO1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a 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:
Record rainfall during previous month (6.5 inches in February and over 3 inches in the week prior to wetland delineation). This plot meets the criteria for a wetland. Located in Wetland 6-5 (merged with Wetland 6-4).

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	50	Y	FAC
	50	=Total Cover	
Shrub Stratum			
Herb Stratum (Plot size: 5 Ft)			
Carex obnupta	10	Y	OBL
	10	=Total Cover	
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	30	Y	FACU
	30	=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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	0	x 2 =	0
FAC species	50	x 3 =	150
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	90 (A)		280 (B)

Prevalence Index = B/A= 3.11

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

X Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets the dominance test for hydrophytic vegetation.

SOIL

Sampling Point: SP 06-5-4

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 to 7	10YR 2 / 2	100					Gravelly sandy lam	
7 to 16	2.5Y 5 / 3	80	10YR 4/6	20			LOAMY SAND	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
Problematic soils; soils too saturated to see redoximorphic features. Hydric soils assumed based on presence of hydrology and hydrophytic vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):		
Water Table Present?	Yes X	No	Depth (inches):	4"	
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 hydrology meets indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 1/28/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 12-1-1

Investigators: Lisa Danielski Ian Welch Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Toe of Slope Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.368142 Long: -122.294777 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Upland sample plot east of Wetland 12-1. Below-normal rainfall in November and December (3.79 and 1.66 inches, respectively). Rainfall nearly below normal in January (3.7 inches).This site does not meet the criteria to be classified as a wetland.

VEGETATION– Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	10	Y	FAC
	10	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Ranunculus repens	50	Y	FAC
	50	=Total Cover	
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	10	Y	FACU
	10	=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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	60	x 3 =	180
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	70 (A)		220 (B)

Prevalence Index = B/A= 3.14

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- ____ Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets the dominance test for hydrophytic vegetation

SOIL

Sampling Point: SP 12-1-1

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 to 10	10YR 2 / 1	100	None				very gravely sandy loam	
10 to 22	2.5YR 3 / 2	97	10YR 4/6	30	C	M	Gravely loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:
This sample does not meet any hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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:
No primary or secondary indicators of hydrology.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 1/28/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 12-1-2

Investigators: Lisa Danielski Ian Welsh Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.366344 Long: -122.295397 Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 15 to 30 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Below-normal rainfall in November and December (3.79 and 1.66 inches, respectively). Rainfall nearly below normal in January (3.7 inches).Upland sample point on down slope on east side of Wetland 12-1. This site does not meet the criteria to be classified as a wetland.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Sambucus racemosa	10	Y	FACU
	10	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Urtica dioica	3	Y	FAC
	3	=Total Cover	
Vine Stratum (Plot size: 30 Ft)			
Rubus spectabilis	25	Y	FAC
	25	=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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	28	x 3 =	84
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	38 (A)		124 (B)

Prevalence Index = B/A= 3.26

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- ____ Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets the dominance test for hydrophytic vegetation.

SOIL

Sampling Point: SP 12-1-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 20	10YR 2 / 1	100	None				FINE SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes ____ No X

Remarks:
This sample does not meet any hydric soil indicators; soils do not meet thick dark surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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: FWLE / I-5 City/County: Bellevue Sampling Date: 1/28/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 12-1-3

Investigators: Lisa Danielski Ian Welch Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.366491 Long: -122.295092 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Below-normal rainfall in November and December (3.79 and 1.66 inches, respectively). Rainfall nearly below normal in January (3.7 inches). Upland sample plot in suspicious PHAR/RUSP community east of Wetland 12-1.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	10	Y	FAC
	10	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Phalaris arundinacea	80	Y	FACW
Urtica dioica	2	Y	FAC
	82	=Total Cover	
Vine Stratum			

% 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: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	12	x 3 =	36
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	92 (A)		196 (B)

Prevalence Index = B/A= 2.13

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

X Dominance Test > 50%

X Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets the dominance test and prevalence index for hydrophytic vegetation.

SOIL

Sampling Point: SP 12-1-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 20	10YR 2 / 1	100	None				FINE SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes ____ No X

Remarks:
Damp soils. This sample does not meet any hydric soil indicators; does not meet thick dark surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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:
This sample does not meet any hydrology indicators.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 1/28/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 12-1-4

Investigators: Lisa Danielski Ian Welsh Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Toe of Slope Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.366846 Long: -122.295243 Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 15 to 30 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a 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 X	No		

Remarks:
Below-normal rainfall in November and December (3.79 and 1.66 inches, respectively). Rainfall nearly below normal in January (3.7 inches). Sample plot upslope and east of Wetland 12-1. This site does not meet the criteria to be classified as a wetland.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 5 Ft)			
Athyrium filix-femina	5	Y	FAC
	5 =Total Cover		
Vine Stratum (Plot size: 30 Ft)			
Rubus ursinus	5	Y	FACU
	5 =Total Cover		

% Bare Ground in Herb Stratum

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: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	10 (A)		35 (B)

Prevalence Index = B/A= 3.50

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks: (Include photo numbers here or on a separate sheet.)

This sample does not meet any vegetative indicators.

SOIL

Sampling Point: SP 12-1-4

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 to 11	10YR 2 / 1	100					FINE SANDY LOAM	
11 to 17	10YR 4 / 1	100					gravely Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes ____ No X

Remarks:
This sample does not meet any hydric soil indicators. **Soils too saturated for redox**

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):		
Water Table Present?	Yes X	No ____	Depth (inches):	13"	
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches):	12"	

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology meets indicators for saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 1/28/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 12-1-5

Investigators: Lisa Danielski Ian Welsh Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): Convex Slope(%)

Subregion (LRR): A Lat: 47.366811 Long: -122.295289 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a 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 paired sample plot less than 10ft upslope of 12-1-4. Below-normal rainfall in November and December (3.79 and 1.66 inches, respectively). Rainfall nearly below normal in January (3.7 inches).

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Tsuga heterophylla	30	Y	FACU
	30	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	10	Y	FAC
	10	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Dryopteris expansa	5	Y	FACW
Polystichum munitum	5	Y	FACU
	10	=Total Cover	
Vine Stratum (Plot size: 30 Ft)			
Rubus ursinus	10	Y	FACU
	10	=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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index Worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	10	x 3 =	30
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	60 (A)		220 (B)

Prevalence Index = B/A= 3.67

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks: (Include photo numbers here or on a separate sheet.)

This sample does not meet dominance or prevalence test.

SOIL

Sampling Point: SP 12-1-5

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 to 7	10YR 3 / 2	100					LOAMY SAND	
7 to 17	2.5Y 4 / 3	98	10yr 4/6	2	C	M	LOAMY SAND	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:
Shovel Refusal at 17" due to dense roots. This sample does not meet any hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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? Yes _____ No X Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
This sample does not meet any hydrology indicators.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 1/28/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 12-1-6

Investigators: Lisa Danielski Ian Welch Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.367295 Long: -122.294916 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification: PFO1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation X, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a 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:
This site meets the criteria for a wetland. Sample plot in east portion of Wetland 12-1. Below-normal rainfall in November and December (3.79 and 1.66 inches, respectively). Rainfall nearly below normal in January (3.7 inches).

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	45	Y	FAC
	45	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	15	Y	FAC
	15	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Polystichum munitum	5	Y	FACU
	5	=Total Cover	
Vine Stratum (Plot size: 30 Ft)			
Hedera helix	80	Y	FACU
	80	=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: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	60	x 3 =	180
FACU species	85	x 4 =	340
UPL species	0	x 5 =	0
Column Totals:	145 (A)		520 (B)

Prevalence Index = B/A= 3.59

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Problematic due to invasive species. Vegetation is considered hydrophytic.`

SOIL

Sampling Point: SP 12-1-6

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 to 8	10YR 3 / 1	100					Gravely Sandy Loam	
8 to 12	5Y 6 / 2	95	10yr 4/6	5	C	M	Very Gravely Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: cobbles

Depth (inches): 12"

Hydric Soil Present? Yes X No

Remarks:
Shovel Refusal after 12" due to cobbles. This area meets hydric soil indicator.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):		
Water Table Present?	Yes X	No	Depth (inches):	10	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	8	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology meets indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 1/28/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 12-1-7

Investigators: Lisa Danielski Ian Welch Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Top of Slope Local Relief (concave, convex, none): Convex Slope(%)

Subregion (LRR): A Lat: 47.367264 Long: -122.294896 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Upland paired sample plot with SP 12-6. Below-normal rainfall in November and December (3.79 and 1.66 inches, respectively). Rainfall nearly below normal in January (3.7 inches).

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	50	Y	FAC
Thuja plicata	10	N	FAC
	60	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	20	Y	FAC
	20	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Polystichum munitum	10	Y	FACU
	10	=Total Cover	
Vine Stratum (Plot size: 30 Ft)			
Hedera helix	80	Y	FACU
	80	=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: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	80	x 3 =	240
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	170 (A)		600 (B)

Prevalence Index = B/A= 3.53

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

This sample does not meet any vegetative indicators.

SOIL

Sampling Point: SP 12-1-7

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 to 9	10YR 4 / 2	100					Gravely Sandy Loam	
9 to 16	10YR 5 / 2	100					Very Gravely Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes ____ No X

Remarks:
Shovel Refusal at 16". This sample does not meet any hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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):	16	

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Saturation starts at 16". This sample does not meet any hydrology indicators. Saturation is too deep for the time of year to meet A3

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 1/28/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 12-1-8

Investigators: Lisa Danielski Ian Welsh Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.367996 Long: -122.294780 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification: PEM1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
This site meets the criteria for a wetland. Below-normal rainfall in November and December (3.79 and 1.66 inches, respectively). Rainfall nearly below normal in January (3.7 inches). Sample plot located in north portion of Wetland 12-1 on east side of wetland.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 5 Ft)			
Scirpus microcarpus	85	Y	OBL
Phalaris arundinacea	15	N	FACW
Equisetum telmateia	3	N	FACW
	103	=Total Cover	
Vine Stratum			

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	85	x 1 =	85
FACW species	18	x 2 =	36
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	103 (A)		121 (B)

Prevalence Index = B/A= 1.17

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets the dominance test and prevalence index for hydrophytic vegetation.

SOIL

Sampling Point: SP 12-1-8

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 to 8	10YR 2 / 1	100	None				Gravely Sandy Loam	
8 to 10	2.5YR 5 / 1	93	10YR 4/6	7	C	M	Gravely Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
Shovel refusal at 10" due to highly compacted gravelly sand. This area meets hydric soil indicator with a depleted matrix (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):		
Water Table Present?	Yes X	No	Depth (inches):	7	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	10	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology meets indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 1/28/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 12-1-9

Investigators: Lisa Danielski Ian Welsh Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Top of Slope Local Relief (concave, convex, none): Convex Slope(%)

Subregion (LRR): A Lat: 47.368011 Long: -122.294795 Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Paired upland sample plot in emergent area of Wetland 12-1. This site does not meet the criteria to be classified as a wetland. Below-normal rainfall in November and December (3.79 and 1.66 inches, respectively). Rainfall nearly below normal in January (3.7 inches).

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	5	Y	FAC
	5	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Phalaris arundinacea	100	Y	FACW
	100	=Total Cover	
Vine Stratum			

% 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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	105 (A)		215 (B)

Prevalence Index = B/A= 2.05

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

X Dominance Test > 50%

X Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets the dominance test and prevalence index for hydrophytic vegetation.

SOIL

Sampling Point: SP 12-1-9

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 to 17	10YR 2 / 2	100	None				Very Gravely Sandy Loam	
17 to 21	10YR 3 / 2	98	7.5YR 4/4				Very Gravely Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:
This sample does not meet any hydric soil indicators; 17-21" soils are too deep to meet redox dark surface and do not constitute a depleted matrix layer.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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:
This sample does not meet any hydrology indicators.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Des Moines Sampling Date: 3/26/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 12-2-1

Investigators: Lisa Danielski Brendan Baughn Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.365811 Long: -122.305703 Datum: NAD83

Soil Map Unit Name: Everett gravelly sandy loam, 0 to 5 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a 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:
Paired upland plot for Wetland 12-2. This plot does not meet all hydrology indicators. Record rainfall during previous month (6.5 inches in February and over 1.5 inches in the week prior to wetland delineation)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Acer circinatum	2	Y	FAC
	2	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Festuca rubra	50	Y	FAC
Holcus lanatus	30	Y	FAC
Bryopsida spp.	15	N	FAC
Medicago lupulina	1	N	FACU
Taraxacum officinale	1	N	FACU
Vicia americana	1	N	FAC
	98	=Total Cover	
Vine Stratum			

% 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: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	98	x 3 =	294
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	100 (A)		302 (B)

Prevalence Index = B/A= 3.02

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- ____ Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Shrubs recently outplanted. Vegetation meets the dominance test for hydrophytic vegetation.

SOIL

Sampling Point: SP 12-2-1

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 to 7	10YR 3 / 2	97	5YR 4/6	3	C	M	FINE SANDY LOAM	
7 to 11	10YR 3 / 4	93	2.5yr 4/6	2	C	M	SANDY LOAM	
7 to 11	/		7.5YR 5/8	5	C	M	SANDY LOAM	
11 to 14	10YR 2 / 2	97	10YR 5/6	2	C	M	LOAM	Sandy Inclusions
11 to 14	/		5YR 3/4	10	P	L	LOAM	
14 to 15	2.5Y 5 / 2	100						Diatomaceous earth
15 to 19	10YR 3 / 1	100					SANDY CLAY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ____ **No** X

Remarks:
This sample does not meet any hydric soil indicators. Paired upland plot for Wetland 12-2.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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:
This sample does not meet any hydrology indicators.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Des Moines Sampling Date: 3/26/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 12-2-2

Investigators: Lisa Danielski Brendan Baughn Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: -122.305683 Long: 47.365848 Datum: NAD83

Soil Map Unit Name: Everett gravelly sandy loam, 0 to 5 percent slopes NWI Classification: PEM1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
This plot meets the criteria for a wetland. Record rainfall during previous month (6.5 inches in February and over 1.5 inches in the week prior to wetland delineation). Sample plot is in Wetland 12-2.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 5 Ft)			
Glyceria elata	40	Y	FACW
Phalaris arundinacea	40	Y	FACW
Juncus effusus	10	N	FACW
Holcus lanatus	5	N	FAC
Ranunculus repens	5	N	FAC
Rumex obtusifolius	2	N	FAC
	102	=Total Cover	
Vine Stratum			

% 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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	12	x 3 =	36
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	102 (A)		216 (B)

Prevalence Index = B/A= 2.12

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets the dominance test and prevalence index for hydrophytic vegetation.

SOIL

Sampling Point: SP 12-2-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 6	10y 3 / 2	100					FINE SANDY LOAM	
6 to 15	10YR 4 / 1	98	10YR 5/8	20	C	M	SANDY LOAM	Some cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):		
Water Table Present?	Yes X	No	Depth (inches):	4"	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	0"	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Meets A2 and A3

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Kent Sampling Date: 3/26/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 20-2-1

Investigators: Lisa Danielski Brendan Baughn Section, Township, Range S 22 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.385223 Long: -122.290897 Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 6 to 15 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation X, Soil , Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Sample plot to verify that Wetland 20-2 does not extend into WSDOT ROW. This plot does not meet all wetland indicators. Record rainfall during previous month (6.5 inches in February and over 1.5 inches in the week prior to wetland delineation).

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Spiraea douglasii	5	Y	FACW
	5	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	75	Y	FACU
	75	=Total Cover	

% Bare Ground in Herb Stratum

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: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	75	x 4 =	300
UPL species	0	x 5 =	0
Column Totals:	80 (A)		310 (B)

Prevalence Index = B/A= 3.88

Hydrophytic Vegetation Indicators:

- Rapid Test for Hydrophytic Vegetation
- Dominance Test > 50%
- Prevalence Index ≤ 3.0
- Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No**

Remarks: (Include photo numbers here or on a separate sheet.)

This sample does not meet any vegetative indicators.

SOIL

Sampling Point: SP 20-2-1

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 to 14	2.5y 2 / 1	100					LOAM	
14 to 16	10YR 6 / 6	100					Diatomacoius Earth	
16 to 20	2.5Y 2 / 1						LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:
This sample does not meet any hydric soil indicators; chroma 2 soils do not meet depleted matrix criteria; no redoximorphic features to meet redox dark surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):		
Water Table Present?	Yes X	No ____	Depth (inches):	20	
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches):	18	

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
This sample does not meet any hydrology indicators; free water/saturation too deep after heavy rainfall in early part of growing season to meet hydrologic indicators.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Kent Sampling Date: 2/15/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 20-3-1

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 21 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification: PSS1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes	X	No	**Is the Sampled Area within a Wetland?**	**Yes**		**No**	**X**
Wetland Hydrology Present?	Yes	X	No		

Remarks:
Sample plot located in center of Wetland 20-3. Above average rainfall occurred in the area for several weeks prior to sampling date.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Cornus alba	30	Y	FACW
	30	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Hedera helix	70	Y	FACU
	70	=Total Cover	

% Bare Ground in Herb Stratum

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: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	100 (A)		340 (B)

Prevalence Index = B/A= 3.40

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Hedera helix is an aggressive invasive plant species.

SOIL

Sampling Point: SP 20-3-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 12	10YR 2 / 2	100					Gravelly sandy loam	Soil reddened upon air exposure

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:
Brightened chromas upon air exposure is indicative of ferrous soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	_____	No	X	Depth (inches): _____
Water Table Present?	Yes	X	No	_____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes	X	No	_____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology met indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Kent Sampling Date: 2/15/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 20-3-2

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 21 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 6 to 15 percent slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Paired upland plot located south of Wetland 20-3 boundary. Above average rainfall occurred in the area for several weeks prior to sampling date. Plot does not meet any wetland criteria.

VEGETATION– Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Populus balsamifera	40	Y	FAC
	40	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Oemleria cerasiformis	50	Y	FACU
	50	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Hedera helix	70	Y	FACU
Rubus armeniacus	10	N	FACU
	80	=Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	130	x 4 =	520
UPL species	0	x 5 =	0
Column Totals:	170 (A)		640 (B)

Prevalence Index = B/A= 3.76

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

This sample does not meet dominance or prevalence test.

SOIL

Sampling Point: SP 20-3-2

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
0 to 7	10YR 2 / 2	100					SANDY LOAM	
7 to 16	10YR 4 / 3	100					Gravelly sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:
This sample does not meet any hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches):		
Water Table Present?	Yes X	No _____	Depth (inches):	16	
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches):	15	

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
This sample does not meet any hydrology indicators. Saturation and water table too deep for early part of growing season.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Kent Sampling Date: 2/15/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 24-2-1

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 28 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 0 to 15 percent slopes NWI Classification: PFO1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
Soil plot located in southeast portion of Wetland 24-2. Above average rainfall occurred in the area for several weeks prior to sampling date. Plot meets all wetland criteria.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	25	Y	FAC
	25	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Oemleria cerasiformis	25	Y	FACU
Spiraea douglasii	10	Y	FACW
Rubus spectabilis	5	N	FAC
	40	=Total Cover	
Herb Stratum			
Vine Stratum			

% 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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	30	x 3 =	90
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	65 (A)		210 (B)

Prevalence Index = B/A= 3.23

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

X Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Mosses present in sample plot. Vegetation meets the dominance test for hydrophytic vegetation.

SOIL

Sampling Point: SP 24-2-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 9	10YR 2 / 1	100					SANDY LOAM	Soil reddened upon air exposure
9 to 14	10YR 2 / 1	93	7.5YR 4/4	7	C	M	Gravelly sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:
Soils exhibit redox dark surface indicator (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes		No	X	Depth (inches):
Water Table Present?	Yes	X	No		Depth (inches): 5
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology meets indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Kent Sampling Date: 2/15/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 24-2-2

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 28 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 0 to 15 percent slopes NWI Classification: PSS1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:
Plot located at Wetland 24-2 boundary. Above average rainfall occurred in the area for several weeks prior to sampling date. Sample plot met two of the three wetland criteria.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Oemleria cerasiformis	50	Y	FACU
Rubus spectabilis	5	N	FAC
	55	=Total Cover	
Herb Stratum			
Vine Stratum			

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	55 (A)		215 (B)

Prevalence Index = B/A= 3.91

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation does not meet any indicators for hydrophytic vegetation.

SOIL

Sampling Point: SP 24-2-2

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
0 to 10	10YR 2 / 1	100					Gravelly sandy loam	
10 to 15	10YR 4 / 2	90	10YR 7/6	10	C	M	SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
Soils met indicator for depleted matrix (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):		
Water Table Present?	Yes X	No	Depth (inches):	10	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	9	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology meets indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Kent Sampling Date: 2/15/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 24-2-3

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 28 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 0 to 15 percent slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Upland soil plot located south of Wetland 24-2 boundary. Above average rainfall occurred in the area for several weeks prior to sampling date. Plot does not meet any wetland criteria.

VEGETATION– Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Populus balsamifera	50	Y	FAC
	50	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Oemleria cerasiformis	50	Y	FACU
Rubus spectabilis	10	N	FAC
	60	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Rubus ursinus	15	Y	FACU
	15	=Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index Worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	60	x 3 =	180
FACU species	65	x 4 =	260
UPL species	0	x 5 =	0
Column Totals:	125 (A)		440 (B)

Prevalence Index = B/A= 3.52

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation does not meet any indicators for hydrophytic vegetation.

SOIL

Sampling Point: SP 24-2-3

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 to 13	10YR 3 / 2	100					SANDY LOAM	
13 to 18	10YR 4 / 3	98	10YR 5/8	2			Gravelly sandy loam	Concretions

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes ____ No X

Remarks:
Soils do not meet any indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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? Yes ____ No X Depth (inches): ____

(includes capillary fringe)

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
This sample does not meet any hydrology indicators.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Kent Sampling Date: 2/15/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 24-2-4

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 28 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 0 to 15 percent slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Sample plot located on north side of Wetland 24-2. Above average rainfall occurred in the area for several weeks prior to sampling date. Sample plot exhibits no wetland indicators.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Oemleria cerasiformis	10	Y	FACU
Rubus spectabilis	5	Y	FAC
	15	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	5	Y	FACU
	5	=Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	20 (A)		75 (B)

Prevalence Index = B/A= 3.75

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation does not meet any indicators for hydrophytic vegetation.

SOIL

Sampling Point: SP 24-2-4

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 to 6	10YR 2 / 1	100					FINE SANDY LOAM	
6 to 13	10YR 4 / 3	100					Gravelly sandy loam	
13 to 19	7.5YR 4 / 3	98	7.5YR 5/8	2	C	M	Gravelly sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:
Sampled soils do not meet any wetland indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):		
Water Table Present?	Yes X	No ____	Depth (inches):	19	
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches):	18	

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
This sample does not meet any hydrology indicators. Saturation and water table too deep for early part of growing season.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Kent Sampling Date: 2/15/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 24-2-5

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 28 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 0 to 15 percent slopes NWI Classification: PEM1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes	X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Wetland Hydrology Present?	Yes	X	No		

Remarks:
Sample plot located in northern portion of Wetland 24-2. Above average rainfall occurred in the area for several weeks prior to sampling date. Sample plot meets all wetland criteria.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	10	Y	FAC
	10	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Glyceria elata	30	Y	FACW
Athyrium filix-femina	1	N	FAC
	31	=Total Cover	
Vine Stratum			

% 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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	11	x 3 =	33
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	41 (A)		93 (B)

Prevalence Index = B/A= 2.27

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

X Dominance Test > 50%

X Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets the dominance and prevalence test for hydrophytic vegetation.

SOIL

Sampling Point: SP 24-2-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 10	10YR 3 / 1	100						Soil reddened upon air exposure

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
Brightening soils upon air exposure are indicative of ferrous soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes X	No	Depth (inches):	<1	
Water Table Present?	Yes X	No	Depth (inches):	Surface	
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:
Sample plot exhibits hydrology indicators for surface water (A1), high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 1/6/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 25-2-1

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 33 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Everett very gravelly sandy loam, 8 to 15 percent NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Paired upland sample plot north of Wetland 25-2. Plot does not meet all three wetland criteria. Above average rainfall occurred in the area for several weeks prior to sampling date.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	30	Y	FAC
	30	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	5	Y	FAC
	5	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Ranunculus repens	20	Y	FAC
	20	=Total Cover	
Vine Stratum (Plot size: 30 Ft)			
Rubus ursinus	20	Y	FACU
Rubus armeniacus	10	Y	FACU
	30	=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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index Worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	55	x 3 =	165
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	85 (A)		285 (B)

Prevalence Index = B/A= 3.35

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

X Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets dominance criterion; however, does not meet prevalence.

SOIL

Sampling Point: SP 25-2-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 17	10YR 2 / 2	100					gravelly sandy loam	
17 to 21	10YR 3 / 2	95	10yr 5/8	5	C	M	very gravelly sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes ____ No X

Remarks:
soils do not meet hydric soil criteria; soils too bright at 0-17" to meet thick dark surface (A12) indicator.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):		
Water Table Present?	Yes X	No ____	Depth (inches):	21	
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches):	19	

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No primary or secondary indicators present. Saturation/water table too deep for early part of growing season and above-average rainfall.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 1/6/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 25-2-2

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 33 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Everett very gravelly sandy loam, 8 to 15 percent NWI Classification: PSS1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes	X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Wetland Hydrology Present?	Yes	X	No		

Remarks:
Sample plot located in northeast region of wetland 25-1. Above average rainfall occurred in the area for several weeks prior to sampling date. Too saturated to determine presence hydric soil indicators; assumed hydric soils based on observed vegetation and hydrology indicators.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	5	Y	FAC
	5	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	10	Y	FAC
	10	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	10	Y	FACU
	10	=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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	25 (A)		85 (B)

Prevalence Index = B/A= 3.40

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- ____ Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets dominance test criterion.

SOIL

Sampling Point: SP 25-2-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 4	10YR 2 / 2	100					Gravelly loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:

Problematic soils; appear to consist of fill material. Too saturated too meet criteria requiring redoximorphic features; hydric soils assumed based on vegetation and hydrology indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes		No	X	Depth (inches):
Water Table Present?	Yes	X	No		Depth (inches): 3
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 hydrology meets indicators for high water table (A2), and saturation (A3). Sample plot adjoins areas ponded with 5" of water.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 1/6/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 25-2-3

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 33 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Everett very gravelly sandy loam, 8 to 15 percent NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Upland sample plot located near southwestern boundary of Wetland 25-1. Above average rainfall occurred in the area for several weeks prior to sampling date. Plot does not meet all three wetland indicators.

VEGETATION– Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	5	Y	FAC
	5	=Total Cover	
Shrub Stratum			
Herb Stratum (Plot size: 5 Ft)			
Carex obnupta	10	Y	OBL
Equisetum telmateia	5	N	FACW
	15	=Total Cover	
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	15	Y	FACU
	15	=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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	5	x 2 =	10
FAC species	5	x 3 =	15
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	35 (A)		95 (B)

Prevalence Index = B/A= 2.71

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

X Dominance Test > 50%

X Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Mosses comprise approximately 20% of ground cover. Vegetation meets the dominance test and prevalence index for hydrophytic vegetation.

SOIL

Sampling Point: SP 25-2-3

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 to 20	10YR 3 / 3	60	10YR 4/8	5	C	M	CLAY LOAM	
0 to 20	10YR 3 / 3	60	10YR 4/2	35	C	M	CLAY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:
Soils appear to be partially comprised of side cast material. Soils do not exhibit any indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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:
This sample plot does not meet any wetland hydrology indicators.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 1/1/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 25-2-4

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 33 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Everett very gravelly sandy loam, 8 to 15 percent NWI Classification: PEM1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes	X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Wetland Hydrology Present?	Yes	X	No		

Remarks:
Sample plot located in southern portion of Wetland 25-2. Above average rainfall occurred in the area for several weeks prior to sampling date. Plot meets all three wetland indicators.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 5 Ft)			
Equisetum telmateia	15	Y	FACW
Geum macrophyllum	1	N	FAC
	16	=Total Cover	
Vine Stratum			

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	1	x 3 =	3
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	16 (A)		33 (B)

Prevalence Index = B/A= 2.06

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets the dominance test and prevalence index for hydrophytic vegetation.

SOIL

Sampling Point: SP 25-2-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 12	10YR 4 / 2	90	10YR 5/8	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
Depleted matrix indicator (F3) observed in sampled soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes		No	X	Depth (inches):
Water Table Present?	Yes	X	No		Depth (inches): 3
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 hydrology meets indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 1/6/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 25-2a-1

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 33 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Everett very gravelly sandy loam, 8 to 15 percent NWI Classification: PSS1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
Wetland sample plot located in center of Wetland 25-2a. Above average rainfall occurred in the area for several weeks prior to sampling date. Plot meets all three wetland indicators.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Cornus alba	30	Y	FACW
Rubus spectabilis	5	N	FAC
	35	=Total Cover	
Herb Stratum			
Vine Stratum			

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	35 (A)		75 (B)

Prevalence Index = B/A= 2.14

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Dead Thuja plicata plantings within vegetation sample area. Vegetation meets the dominance test and prevalence index for hydrophytic vegetation.

SOIL

Sampling Point: SP 25-2a-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 to 9	10YR 2 / 2	100					LOAM	
9 to 13	10YR 4 / 1	95	7.5yr 4/6	5	C	M	Gravelly sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
Soil meets criteria for depleted matrix indicator (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):		
Water Table Present?	Yes X	No	Depth (inches):	7	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	4	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology meets indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 1/6/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 25-2a-2

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 33 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Everett very gravelly sandy loam, 8 to 15 percent NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes	X	No	**Is the Sampled Area within a Wetland?**	**Yes**		**No**	**X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Sample plot located west of Wetland 25-2a boundary. Above average rainfall occurred in the area for several weeks prior to sampling date. Plot does not satisfy all three wetland criteria. Vegetation and soils are marginal; determined not to be a wetland based on lack of hydrology.

VEGETATION– Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	25	Y	FAC
	25	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Cornus alba	10	Y	FACW
	10	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Polystichum munitum	5	Y	FACU
	5	=Total Cover	
Vine Stratum (Plot size: 30 Ft)			
Rubus ursinus	5	Y	FACU
	5	=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: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 10	x 2 = 20
FAC species 25	x 3 = 75
FACU species 10	x 4 = 40
UPL species 0	x 5 = 0
Column Totals: 45 (A)	135 (B)

Prevalence Index = B/A= 3.00

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

X Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets prevalence index indicator.

SOIL

Sampling Point: SP 25-2a-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 4	10YR 2 / 1	100					LOAM	
4 to 20	10YR 4 / 2	98	7.5YR 4/6	2	C	M	Gravelly sandy loam	Concentrations located at pebble edges

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:
Soils exhibit wetland indicator for depleted soils (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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:
This sample does not meet any hydrology indicators.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/25/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 25-5-1

Investigators: Lisa Danielski Maki Dalzell Section, Township, Range S S 33 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 8 to 15 percent slopes NWI Classification: PEM1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
Sample plot is located at Wetland 25-5 boundary, upstream of a ditch. Wetland 25-5 is a seep located south of Wetland 25-2a. Above average rainfall occurred in the area several weeks prior to the sample date. Plot meets all three wetland indicators.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 5 Ft)			
Phalaris arundinacea	100	Y	FACW
	100	=Total Cover	
Vine Stratum			

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A= 2.00

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets dominance test and prevalence index indicators for wetland vegetation.

SOIL

Sampling Point: SP 25-5-1

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 to 7	10YR 2 / 2	100					LOAM	
7 to 13	2.5Y 4 / 1	95	10YR 4/6	5	C	M	CLAY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
Hydric soil indicator F3 observed in sample.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):		
Water Table Present?	Yes X	No	Depth (inches):	12	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	10	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Sample plot has indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/25/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 25-5-2

Investigators: Lisa Danielski Maki Dalzell Section, Township, Range S S 33 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): None Slope(%) 10

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 8 to 15 percent slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a 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 X	No		
Wetland Hydrology Present?	Yes	No X		

Remarks:
Upland paired plot located outside north eastern boundary of Wetland 25-5. Above average rainfall occurred in area for several weeks prior to sample date. Plot does not meet all three wetland criteria; determined not to be a wetland based on lack of hydrology.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Acer circinatum	15	Y	FAC
Crataegus monogyna	10	Y	FAC
Cytisus scoparius	10	Y	UPL
	35	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Cardamine oligosperma	30	Y	FAC
Poa pratensis	30	Y	FAC
Galium aparine	20	Y	FACU
Holcus lanatus	15	N	FAC
	95	=Total Cover	
Vine Stratum (Plot size: 30 Ft)			
Rubus ursinus	20	Y	FACU
	20	=Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57.1% (A/B)

Prevalence Index Worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	40	x 4 =	160
UPL species	10	x 5 =	50
Column Totals:	150 (A)		510 (B)

Prevalence Index = B/A= 3.40

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- ____ Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Approximately 5% mosses present in ground cover vegetation. Vegetation meets indicator for hydrophytic vegetation dominance test.

SOIL

Sampling Point: SP 25-5-2

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
0 to 3	10YR 3 / 2	100					SILT LOAM	
3 to 8	5Y 4 / 1	100					Gravelly clay loam	Compacted soils
8 to 18	5Y 4 / 1	97	10YR 4/4	3	C	M	Gravelly clay loam	Compacted soils

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:
Soils sampled meet indicator for depleted matrix (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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:
Soils damp at top 8" but not saturated. No hydrologic indicators were observed at sample plot.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/25/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 25-5-3

Investigators: Lisa Danielski Maki Dalzell Section, Township, Range S S 33 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 8 to 15 percent slopes NWI Classification: PEM1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
Sample plot inundated on sample date. Above average rainfall occurred in the area several weeks prior to the sample date. Sample plot meets all three wetland criteria.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 5 Ft)			
Nasturtium officinale	50	Y	OBL
Phalaris arundinacea	30	Y	FACW
	80	=Total Cover	
Vine Stratum			

% 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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

	Total % Cover of:	Multiply by:	
OBL species	50	x 1 =	50
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	80 (A)		110 (B)

Prevalence Index = B/A= 1.38

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets dominance test and prevalence index indicators for wetland vegetation.

SOIL

Sampling Point: SP 25-5-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 6	10YR 3 / 1	100					LOAM	Soil reddened upon air exposure

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? **Yes** X **No**

Remarks:
Brightened chroma upon air exposure indicative of ferrous soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes X	No	Depth (inches):	3	
Water Table Present?	Yes X	No	Depth (inches):	Surface	
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:
Hydrology meets wetland indicator for surface water (A1), high water table (A2), and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/25/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 25-5-4

Investigators: Lisa Danielski Maki Dalzell Section, Township, Range S S 33 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 8 to 15 percent slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Upland paired sample plot located in southern portion of Wetland 25-5. Above average rainfall occurred in the area several weeks prior to the sample date. Sample does not meet any wetland criteria.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Mahonia aquifolium	5	Y	FACU
	5	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Galium aparine	80	Y	FACU
Holcus lanatus	10	N	FAC
	90	=Total Cover	
Vine Stratum (Plot size: 30 Ft)			
Rubus ursinus	5	Y	FACU
	5	=Total Cover	

% Bare Ground in Herb Stratum

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: 0.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	100 (A)		390 (B)

Prevalence Index = B/A= 3.90

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation does not meet indicators for hydrophytic vegetation.

SOIL

Sampling Point: SP 25-5-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 20	10YR 3 / 3	100					Gravelly sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes ____ No X

Remarks:
No hydric soil indicators present in sample.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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:
No hydrologic indicators were observed at sample plot.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/25/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 25-5-5

Investigators: Lisa Danielski Maki Dalzell Section, Township, Range S S 33 T T 22 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 8 to 15 percent slopes NWI Classification: PEM1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
Paired wetland sample plot located in southern portion of Wetland 25-5. Above average rainfall occurred in the area several weeks prior to the sample date. Area meets all three wetland criteria.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 5 Ft)			
Agrostis capillaris	80	Y	FAC
Galium aparine	10	N	FACU
	90	=Total Cover	
Vine Stratum			

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	80	x 3 =	240
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	90 (A)		280 (B)

Prevalence Index = B/A= 3.11

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- ____ Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets dominance test for hydrophytic vegetation.

SOIL

Sampling Point: SP 25-5-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type [1]	Redox Features Loc [2]	Texture	Remarks
0 to 9	10YR 3 / 2	100					Gravelly sandy loam	
9 to 15	10YR 5 / 1	95	10YR 6/8	5	C	M	Gravelly clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
Depleted matrix wetland indicator (F3) present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):		
Water Table Present?	Yes X	No	Depth (inches):	9	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	7	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Sample plot has indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/15/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 26-1-1

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 04 T T 21 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 0 to 6 percent slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Sample plot located east of Wetland 26-1 boundary. Above average rainfall occurred in the area several weeks prior to the sample date. Plot does not meet any wetland indicators.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Hedera helix	100	Y	FACU
	100	=Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index Worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A= 4.00

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation in sample plot does not meet any hydrophytic vegetation indicators.

SOIL

Sampling Point: SP 26-1-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 19	7.5YR 2 / 2	100					Gravelly sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes ____ No X

Remarks:
No indicators for hydric soils present in sample.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	____	No	X	Depth (inches):
Water Table Present?	Yes	X	No	____	Depth (inches): 19
Saturation Present? (includes capillary fringe)	Yes	X	No	____	Depth (inches): 18

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Sample plot does not meet wetland hydrology indicators. Saturation was too deep for early growing season and above average rainfall.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/15/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 26-1-2

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 04 T T 21 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 0 to 6 percent slopes NWI Classification: PEM1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a 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:
Sample plot located at wetland boundary. Above average rainfall occurred in the area several weeks prior to the sample date. Sample plot does not meet all three wetland criteria.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum			
Vine Stratum			

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A= 4.00

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Hedera helix is an aggressive invasive plant species.

SOIL

Sampling Point: SP 26-1-2

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
0 to 4	10YR 2 / 2	98	7.5YR 4/6	2	C	M	Gravelly sandy loam	
4 to 12	10YR 2 / 2	100					Gravelly sandy loam	Soil reddened upon air exposure

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:
Soils meet wetland indicator depleted matrix (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	_____	No	X	Depth (inches): _____
Water Table Present?	Yes	X	No	_____	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes	X	No	_____	Depth (inches): 4

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Sample plot has indicators for water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/15/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 26-1-3

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 04 T T 21 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 0 to 6 percent slopes NWI Classification: PEM1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes	X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Wetland Hydrology Present?	Yes	X	No		

Remarks:
Sample plot located within eastern boundary of Wetland 26-1. Above average rainfall occurred in the area several weeks prior to the sample date. Soils were not sampled at this plot but assumed hydric based on vegetation and hydrology. Area was determined to be a wetland.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Spiraea douglasii	10	Y	FACW
	10	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Phalaris arundinacea	15	Y	FACW
	15	=Total Cover	
Vine Stratum			

% 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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	25 (A)		50 (B)

Prevalence Index = B/A= 2.00

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation sampled meets hydrophytic vegetation indicators for dominance and prevalence.

SOIL

Sampling Point: SP 26-1-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
Soils were not sampled at this plot but assume hydric based on vegetation and hydrology.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes X	No	Depth (inches):	14	
Water Table Present?	Yes X	No	Depth (inches):	0	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	0	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Hydrology meets surface water (A1), high water table (A2), and saturation (A3) indicators.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/15/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 26-1-4

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 04 T T 21 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 0 to 6 percent slopes NWI Classification: PEM1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
Sample plot located at wetland boundary. Above average rainfall occurred in the area several weeks prior to the sample date. Sample plot meets all wetland criteria.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 5 Ft)			
Phalaris arundinacea	100	Y	FACW
	100	=Total Cover	
Vine Stratum			

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A= 2.00

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation sampled meets hydrophytic vegetation indicators for dominance and prevalence.

SOIL

Sampling Point: SP 26-1-4

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 to 3	7.5YR 2.5 / 2	100					FINE SANDY LOAM	
3 to 9	7.5YR 4 / 2	95	7.5YR 5/6	5		PL	Gravelly sandy loam	
9 to 16	7.5YR 5 / 1	100					FINE SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:
Soil meets indicator for depleted matrix (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	_____	No	X	Depth (inches): _____
Water Table Present?	Yes	X	No	_____	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes	X	No	_____	Depth (inches): 9

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Sample plot has indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/15/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 26-1-5

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 04 T T 21 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Arents, Alderwood material, 0 to 6 percent slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Sample plot located east of Wetland 26-1. Above average rainfall occurred in the area several weeks prior to the sample date. Plot does not meet all three wetland criteria.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Cytisus scoparius	5	Y	UPL
	5	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Holcus lanatus	50	Y	FAC
Phalaris arundinacea	15	Y	FACW
Galium aparine	5	N	FACU
	70	=Total Cover	
Vine Stratum			

% 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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	50	x 3 =	150
FACU species	5	x 4 =	20
UPL species	5	x 5 =	25
Column Totals:	75 (A)		225 (B)

Prevalence Index = B/A= 3.00

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation in sample plot meets dominance and prevalence test for hydrophytic vegetation.

SOIL

Sampling Point: SP 26-1-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 12	10YR 3 / 3	100					Very gravelly sandy loam	Soils appear to be fill material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: Compacted gravelly sand

Depth (inches): 12

Hydric Soil Present? Yes ____ No X

Remarks:
Problematic soils; appear to consist of fill material. Matrix too bright for hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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:
No hydrologic indicators were observed at sample plot.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Bellevue Sampling Date: 3/11/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 27-1-1

Investigators: Lisa Danielski Dangelei Fox Section, Township, Range S 4 T 21 N R 4 E

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope(%)

Subregion (LRR): A Lat: 47.337719 Long: -122.293853 Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 0 to 6 percent slopes NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Upland sample plot west of WL 27-1. This plot does not meet all wetland indicators. Record rainfall during previous month (6.5 inches in February and over 3 inches in the week prior to wetland delineation)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Oemleria cerasiformis	40	Y	FACU
	40	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Polystichum munitum	1	N	FACU
	1	=Total Cover	
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	10	Y	FACU
	10	=Total Cover	

% Bare Ground in Herb Stratum

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: 0.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	126	x 4 =	504
UPL species	0	x 5 =	0
Column Totals:	126 (A)		504 (B)

Prevalence Index = B/A= 4.00

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

This sample does not meet dominance or prevalence test.

SOIL

Sampling Point: SP 27-1-1

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 to 6	10YR 2 / 2	100					FINE SANDY LOAM	
6 to 15	10YR 4 / 4	95	7.5YR 4/6	5	C	M	FINE SANDY LOAM	
15 to 20	7.5YR 4 / 4	93	5YR 4/6	7	C	M	SANDY CLAY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:
This sample does not meet any hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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:
This sample does not meet any hydrology indicators.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 3/26/2014

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 27-1-2

Investigators: Lisa Danielski Brendan Baughn Section, Township, Range S 28 T 22 N R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: 47.337755 Long: -122.293916 Datum: NAD83

Soil Map Unit Name: NWI Classification: PSS1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation X, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
Wetland sample plot at edge of Wetland 27-1. This plot meets the criteria for a wetland. Record rainfall during previous month (6.5 inches in February and over 1.5 inches in the week prior to wetland delineation)

VEGETATION– Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	5	Y	FAC
	5	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	5	Y	FACU
	5	=Total Cover	

% Bare Ground in Herb Stratum

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: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	10 (A)		35 (B)

Prevalence Index = B/A= 3.50

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Himalayan blackberry is acting as an aggressive invasive. Presence of hydric soils and hydrology indicate hydrophytic vegetation.

SOIL

Sampling Point: SP 27-1-2

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
0 to 13	10YR 3 / 1	100	None				Gravely Sandy Loam	
13 to 19	7.5YR 4 / 1	97	5YR 4/6	30	C	M	Gravely Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
This area meets hydric soil indicator for depleted below dark surface (A11).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):		
Water Table Present?	Yes X	No	Depth (inches):	13"	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	5"	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Sample plot has indicators for water table and saturation

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/15/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 27-2-1

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 04 T T 21 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 0 to 8 percent slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Sample plot located north of Wetland 27-2 boundary. Above average rainfall occurred in the area several weeks prior to the sample date. Plot does not meet all three wetland criteria.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	75	Y	FAC
Oemleria cerasiformis	10	N	FACU
	85	=Total Cover	
Herb Stratum			
Vine Stratum			

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	75	x 3 =	225
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	85 (A)		265 (B)

Prevalence Index = B/A= 3.12

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

X Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Sampled vegetation meets dominance test for hydrophytic vegetation.

SOIL

Sampling Point: SP 27-2-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 20	10YR 2 / 2	100					Very gravelly sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes ____ No X

Remarks:
Soils exhibit no hydric soil properties.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	____	No	X	Depth (inches): ____
Water Table Present?	Yes	X	No	____	Depth (inches): 20
Saturation Present? (includes capillary fringe)	Yes	X	No	____	Depth (inches): 19

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Hydrology does not meet criteria for wetland. Saturation and water table too deep for early part of growing season.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/15/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 27-2-2

Investigators: Lisa Danielski Ian Welch Section, Township, Range S S 04 T T 21 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 0 to 8 percent slopes NWI Classification: PSS1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes	X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Wetland Hydrology Present?	Yes	X	No		

Remarks:
Sample plot located within the northwestern boundary of Wetland 27-2. Above average rainfall occurred in the area several weeks prior to the sample date. Plot meets all wetland criteria.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	90	Y	FAC
	90	=Total Cover	
Herb Stratum			
Vine Stratum			

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

	Total % Cover of:		Multiply by:
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	90	x 3 =	270
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	90 (A)		270 (B)

Prevalence Index = B/A= 3.00

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets dominance test and prevalence index indicators for wetland vegetation.

SOIL

Sampling Point: SP 27-2-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 9	10YR 5 / 2	100					SANDY LOAM	
9 to 15	10YR 2.5 / 2	100					Very gravelly sandy loam	Soil reddened upon air exposure

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:
Soils too saturated to observe redoximorphic features. Brightened chromas upon air exposure is indicative of ferrous soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes		No	X	Depth (inches):
Water Table Present?	Yes	X	No		Depth (inches): 10
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches): 8

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Sample plot has indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/25/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 27-3-1

Investigators: Lisa Danielski Maki Dalzell Section, Township, Range S S 04 T T 21 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 0 to 8 percent slopes NWI Classification: PFO1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes	X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Wetland Hydrology Present?	Yes	X	No		

Remarks:
Sample plot located in southern portion of Wetland 27-3. Above average rainfall occurred in the area several weeks prior to the sample date. Plot meets all three wetland criteria.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	40	Y	FAC
	40	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Cytisus scoparius	1	Y	UPL
	1	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Juncus effusus	5	Y	FACW
	5	=Total Cover	
Vine Stratum			

% 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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index Worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	40	x 3 =	120
FACU species	0	x 4 =	0
UPL species	1	x 5 =	5
Column Totals:	46 (A)		135 (B)

Prevalence Index = B/A= 2.93

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets dominance test and prevalence index indicators for wetland vegetation.

SOIL

Sampling Point: SP 27-3-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 11	10YR 2 / 2	100					Gravelly sandy loam	
11 to 15	10YR 5 / 2	100					Very gravelly sandy loam	Saturated soils reddened upon air

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:
Shovel refusal at 15" deep. Brightened chromas upon air exposure indicative of ferrous soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	_____	No	X	Depth (inches): _____
Water Table Present?	Yes	X	No	_____	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes	X	No	_____	Depth (inches): 6

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Sample plot has indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/25/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 27-3-2

Investigators: Lisa Danielski Maki Dalzell Section, Township, Range S S 04 T T 21 N R R 4 E

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): None Slope(%) 5

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 0 to 8 percent slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Paired upland plot located outside the south eastern boundary of Wetland 27-3. Above average rainfall occurred in area for several weeks prior to sample date. Plot does not meet any wetland indicators.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Pseudotsuga menziesii	20	Y	FACU
Alnus rubra	10	Y	FAC
	30	=Total Cover	
Shrub Stratum			
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Rubus armeniacus	90	Y	FACU
	90	=Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index Worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	110	x 4 =	440
UPL species	0	x 5 =	0
Column Totals:	120 (A)		470 (B)

Prevalence Index = B/A= 3.92

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

Approximately 10% of ground cover is unidentified mosses. Sample plot shows no indicators of wetland hydrophytic vegetation.

SOIL

Sampling Point: SP 27-3-2

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
0 to 7	10YR 4 / 2	100					Gravelly sandy loam	
7 to 14	2.5YR 4 / 4	95	10YR 4/4	5	C	M	Gravelly sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:
Soils to bright to meet indicator for depleted matrix (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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): 13

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology not present in sample plot; saturation too deep for early part of the growing season.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/25/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 27-3-3

Investigators: Lisa Danielski Maki Dalzell Section, Township, Range S S 04 T T 21 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 0 to 8 percent slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes	X	No	**Is the Sampled Area within a Wetland?**	**Yes**	**No** X
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Upland sample plot located outside northern border of Wetland 27-3-3. Above average rainfall occurred in the area several weeks prior to the sample date. Sample plot did not meet all three wetland criteria.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 5 Ft)			
Agrostis capillaris	50	Y	FAC
Juncus effusus	1	N	FACW
	51	=Total Cover	
Vine Stratum			

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	50	x 3 =	150
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	51 (A)		152 (B)

Prevalence Index = B/A= 2.98

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation meets dominance test and prevalence index indicators for hydrophytic wetland vegetation. Grasses in sample plot area appear to be maintained by spraying and mowing.

SOIL

Sampling Point: SP 27-3-3

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 to 7	10YR 3 / 2	100					FINE SANDY LOAM	
7 to 11	2.5YR 5 / 1	95	7.5YR 4/6	5	C	M	Gravelly clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type: Clay hardpan

Depth (inches): 11

Hydric Soil Present? Yes X No ____

Remarks:
Problematic soils; shovel refusal at 11" due to cemented clay layer. Soils meet wetland indicator for depleted matrix (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised 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:
Soil pit dry to 11"; no perched water on restrictive layer nor any visible saturation present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/25/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 27-3-4

Investigators: Lisa Danielski Maki Dalzell Section, Township, Range S S 04 T T 21 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 0 to 8 percent slopes NWI Classification: PEM1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes	X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Wetland Hydrology Present?	Yes	X	No		

Remarks:
Paired wetland sample plot located in northern portion of wetland. Above average rainfall occurred in the area several weeks prior to the sample date. Sample plot meets all three wetland criteria.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 5 Ft)			
Agrostis capillaris	5	Y	FAC
	5 =Total Cover		
Vine Stratum			

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	5 (A)		15 (B)

Prevalence Index = B/A= 3.00

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

The majority of Agrostis capillaris on site has been sprayed with herbicide. Percent cover indicates live populations only. Vegetation meets dominance test and prevalence index for wetland vegetation.

SOIL

Sampling Point: SP 27-3-4

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 to 5	10YR 3 / 2	95	7.5YR 4/6	5	C	M	FINE SANDY LOAM	
5 to 8	2.5YR 5 / 1	90	10YR 5/6	10	C	M	Gravelly sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
Problematic soils; shovel refusal at 8" deep. Upper 8" of soil meet hydric soil indicators for depleted matrix (F3) and redox dark surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):		
Water Table Present?	Yes X	No	Depth (inches):	6	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	3	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Sample plot has indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/25/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 28-2-1

Investigators: Lisa Danielski Maki Dalzell Section, Township, Range S S 09 T T 21 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 8 to 15 percent slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** **X**
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Largely unvegetated sample plot located at southern end of Wetland 28-2. Above average rainfall occurred in area for several weeks prior to sampling period. Sample plot meets no wetland indicators.

VEGETATION– Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	1	Y	FAC
	1	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Rubus ursinus	10	Y	FACU
	10	=Total Cover	

% Bare Ground in Herb Stratum

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: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	1	x 3 =	3
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	11 (A)		43 (B)

Prevalence Index = B/A= 3.91

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation does not meet indicators for hydrophytic vegetation.

SOIL

Sampling Point: SP 28-2-1

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 to 12	10YR 4 / 3	100					Gravelly sandy loam	
12 to 14	10YR 3 / 3	100					Gravelly clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes ____ No X

Remarks:
No hydric soil indicators observed in soil sample.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☑ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):		
Water Table Present?	Yes X	No ____	Depth (inches):	14	
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches):	13	

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Sample plot does not meet wetland hydrology indicators; saturation and water table too deep for early growing season.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/25/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 28-2-2

Investigators: Lisa Danielski Maki Dalzell Section, Township, Range S S 09 T T 21 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 8 to 15 percent slopes NWI Classification: PSS1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
Wetland sample plot located at southern end of Wetland 28-2. Above average rainfall occurred in area for several weeks prior to sampling period.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum (Plot size: 50 Ft)			
Rubus spectabilis	5	Y	FAC
	5	=Total Cover	
Herb Stratum			
Vine Stratum (Plot size: 30 Ft)			
Rubus ursinus	2	Y	FACU
	2	=Total Cover	

% Bare Ground in Herb Stratum

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: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	7 (A)		23 (B)

Prevalence Index = B/A= 3.29

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Ground cover consisted of 1% mosses. Vegetation does not meet indicators for hydrophytic vegetation.

SOIL

Sampling Point: SP 28-2-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 7	10YR 2 / 2	100					Gravelly sandy loam	
7 to 14	10YR 4 / 2	95	7.5YR 4/6	5	C	M	Gravelly sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
Sample plot meets hydric soil indicator depleted matrix (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):		
Water Table Present?	Yes X	No	Depth (inches):	8	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	5	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Sample plot exhibits indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/25/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 28-3-1

Investigators: Lisa Danielski Maki Dalzell Section, Township, Range S S 28 T T 21 N R R 4 E

Landform (hillslope, terrace, etc.): Local Relief (concave, convex, none): Slope(%)

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 8 to 15 percent slopes NWI Classification: PFO1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
Sample plot located near western boundary of Wetland 28-3. Above average rainfall occurred in the area several weeks prior to sample date. Sample plot meets all three wetland criteria.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	50	Y	FAC
	50	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Spiraea douglasii	30	Y	FACW
Oemleria cerasiformis	10	Y	FACU
	40	=Total Cover	
Herb Stratum			
Vine Stratum			

% 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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index Worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	50	x 3 =	150
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	90 (A)		250 (B)

Prevalence Index = B/A= 2.78

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: (Include photo numbers here or on a separate sheet.)

Ground cover mosses observed within sample plot. Vegetation meets dominance test and prevalence index for hydrophytic vegetation.

SOIL

Sampling Point: SP 28-3-1

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 to 9	10YR 3 / 2	100					FINE SANDY LOAM	
9 to 14	2.5YR 4 / 2	95	10YR 4/6	5	C	M	Gravelly sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
Soils meet hydric soil indicator for depleted matrix (F3).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):		
Water Table Present?	Yes X	No	Depth (inches):	8	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	3	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Hydrology meets indicators for high water table (A2) and saturation (A3).

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: FWLE / I-5 City/County: Federal Way Sampling Date: 2/25/2016

Applicant/Owner: Sound Transit State: WA Sampling Point: SP 28-3-2

Investigators: Lisa Danielski Maki Dalzell Section, Township, Range S S 09 T T 21 N R R 4 E

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): None Slope(%) 3

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Alderwood gravelly sandy loam, 8 to 15 percent slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks)

Are Vegetation ____, Soil ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, Hydrology ____, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:
Paired upland plot located outside north western boundary of Wetland 28-3. Above average rainfall occurred in area for several weeks prior to sample date. This plot does not meet all wetland indicators.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 Ft)			
Alnus rubra	60	Y	FAC
	60	=Total Cover	
Shrub Stratum (Plot size: 50 Ft)			
Oemleria cerasiformis	20	Y	FACU
Crataegus monogyna	10	Y	FAC
	30	=Total Cover	
Herb Stratum (Plot size: 5 Ft)			
Polystichum munitum	30	Y	FACU
Poa pratensis	10	Y	FAC
Taraxacum officinale	5	N	FACU
	45	=Total Cover	
Vine Stratum (Plot size: 30 Ft)			
Rubus ursinus	25	Y	FACU
	25	=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: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index Worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	80	x 3 =	240
FACU species	80	x 4 =	320
UPL species	0	x 5 =	0
Column Totals:	160 (A)		560 (B)

Prevalence Index = B/A= 3.50

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 3.0

____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

Ground cover occupied by approximately 30% mosses. Vegetation does not meet wetland indicators for hydrophytic vegetation.

SOIL

Sampling Point: SP 28-3-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 to 13	10YR 3 / 2	100					SANDY LOAM	
13 to 18	2.5Y 5 / 2	95	10YR 4/6	5	C	M	Gravelly sandy loam	Soils compacted

[1]Type: C=Concentration, D=Depletion, RM=Reduced Martix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ 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 observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
Soils do not meet A11 or A12

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imag.(C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Paised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):		
Water Table Present?	Yes X	No	Depth (inches):	17	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	16	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No primary or secondary hydrology indicators. Saturation/water table too deep for early part of the growing season and above-average rainfall.